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Actionality and aspect in Southern Ndebele and Xhosa, two Nguni languages of South Africa

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This paper presents some key findings of studies of actionality and the verbal grammar–lexicon interface in two Nguni Bantu languages of South Africa, Xhosa and Southern Ndebele. We describe interactions between grammatical tense marking (and other sentential bounding elements) and lexical verb types, arguing for the salience of inchoative verbs, which lexically encode a resultant state, and, in particular, a subclass of inchoative verbs, two-phase verbs, which encode both a resultant state and the "coming-to-be" phase leading up to that state. We further discuss other important features of actional classes in Xhosa and Southern Ndebele, including topics such as the role of participant structure and the relative importance of cross-linguistically prominent distinctions such as that between Vendlerian activities and accomplishments. Although differences between Xhosa and Southern Ndebele are evident both in the behaviour of individual tense-aspect forms and in the interpretive possibilities of specific verbs, the general patterns are quite similar. This similarity suggests that the patterns are likely to extend to other Nguni languages, as well, and that cross-linguistic comparison of particular lexical items across these languages are both feasible and likely to bear fruit.

Keywords: two-phase verbs, inchoative verbs, Bantu aspect and actionality, bidimensional aspect, telicity in Bantu

1. Introduction

Interactions between grammar and lexicon in aspectual interpretations have been the subject of scholarly attention at least since the time of Aristotle (Binnick 1991: 142–144). However, only in more recent years have serious attempts been made to carry out meaningful cross-linguistic studies of the verbal lexical component of these interactions – which we term ACTIONALITY – both in terms of the phasal characteristics of specific lexical items, and regarding the actional systems of languages.

Studies of Bantu languages have necessitated highly articulated classifications of actional types based on their interactions with markers of grammatical aspect (along with other elements that influence the aspectual interpretation of an utterance; see Sasse 2002). Among other things, Bantu languages often draw a distinction between verbs that lexically encode a resultant state (for which we use the designation INCHOATIVE verbs) and those that do not, and many grammatical differences seem to be organized around this distinction. Furthermore, and of special theoretical relevance, many inchoative verbs lexically encode not only a resultant state, but also a phase leading up to this state; following Polančec (forthc.), we call such verbs TWO-PHASE verbs.

This article stems from research on actionality in two South African Nguni languages, Southern Ndebele and Xhosa. It has two major aims. First, we wish to give an overview of some important actional types in these languages, describing their interactions with other elements contributing to aspectual interpretation, including markers of grammatical aspect and adverbial elements. We thereby offer direct evidence for the significant role played by the class of inchoative verbs and its important subclass of two-phase verbs in the Nguni languages and, by extension, in

Bantu. Our second goal is to describe additional characteristics of the actional systems of these languages, including features – for example, participant structure – that may correlate to some extent with actional types, and to discuss issues such as the relative salience of other cross-linguistically important distinctions, for example, the difference between (atelic) activities and (telic) accomplishments. We suggest that the lexical and grammatical components of aspect in these Nguni languages conspire to privilege the inchoative–non-inchoative distinction over other actional distinctions, at least in terms of grammar–lexicon interactions.

The remainder of this article is structured as follows: Section 2 briefly reviews actionality in the literature and introduces some issues important for the study of Bantu actionality and presents the terminological and notational conventions used in this article. Section 3 gives a brief overview of the languages under discussion, our data-collection methodologies, and the limitations of our study. Section 4 establishes two major verb classes, inchoative verbs and non-inchoative verbs, and shows how these classes differ systematically in their interactions with markers of grammatical aspect. We also distinguish between non-inchoative active verbs and non-inchoative state verbs. Section 5 delves more deeply into the class of inchoative verbs, and Section 6 deals with non-inchoative verbs. The paper concludes in Section 7.

2. Theoretical and terminological background

In this section, we give a brief overview of previous work on actionality that will be relevant to our discussion of actionality in Nguni (Section 2.1). We then describe some issues that we believe to be of importance for understanding the actionality–aspect interface in Bantu in general, and in Nguni languages in particular, where few systematic investigations of actional systems have been carried out (Section 2.2). Finally, we note some terminological and orthographic/presentational conventions employed in this article (Section 2.3).

2.1. Actionality in the literature. Over the past sixty years, academic discourse about actionality has been largely inspired by the work of Vendler (1957). Vendler's categories of states, activities, accomplishments, and achievements have served as a starting point for countless studies both of actionality in human language in general and of its expression in particular languages. Whether in its original fourfold form, or with minor modifications, such as the addition of semelfactives in Smith (1997 [1991]) or the conflation of achievements and accomplishments (Kenny 1969; Verkuyl 1972), Vendler's classes have come to be understood by many as reflecting logical universals and hence as being invariable across languages. In practice, this assumption all too often means that the actional structures employed resemble those posited for English or other heavily studied languages (see Ebert 1995: 186; Tatevosov 2002: 302, among others, for discussion).

However, cross-linguistic studies (e.g. Ebert 1995; Bickel 1996, 1997; Tatevosov 2002; Botne 2003), show that different languages can conceptualize nearest translational equivalents quite differently, and increasing evidence shows that in a number of languages – maybe even the majority – Vendler's ontology is insufficient to capture significant properties of actional systems (see also Bar-el 2015).

One problematic aspect of the Vendlerian system is its treatment of states as a basic class. Typological work suggests that in many – or even most – world languages, the basic actional class is inchoatives, which lexicalize *transitions* into a state, rather than (or in addition to) the state itself (e.g. Kibrik & Kodzasov 1977; Ebert 1995; J. Nichols 2018).

Even actional ontologies that account for inchoative verbs often overlook an important subtype of such verbs: verbs that lexically encode both phases of this transition from one state-of-affairs to another, that is, a "preparatory phase" and a contingent "resultant phase". Polančec (forthc.) gives a cross-linguistic overview of this verb type and refers to the class as "two-phase" verbs. Crane & Persohn (2019a,b) use the term "complex lexicalizations"; other terms in the literature include "transitional achievements"/ "transitional accomplishments" (Botne 2003, 2008; Botne & Kershner 2008) and "inchoative Verben" [inchoative verbs] (Breu 1998). While somewhat rarely described, this actional type is attested in languages around the world. In this article, we will follow Polančec (forthc.) in calling them "two-phase" verbs (see Section 2.3 for further terminological conventions). In Crane & Persohn (2019b), we have argued that two-phase verbs, and, more broadly, verbs expressing resultant states are central to an understanding of Bantu actionality and to the expression of ongoing states in many Bantu languages (see, e.g., Botne 2003; Botne & Kershner 2008 for earlier treatments emphasising this actional class).

2.2. Actionality in the Bantu languages. Unlike in many languages of the world, in most Bantu (and many other Niger-Congo) languages, most ongoing states are expressed not with present tense or imperfective morphology, but rather with forms described as "perfect" or "perfective". Examples (1, 2) illustrate this phenomenon in two Bantu languages. Kwanyama (1) uses (perfective) past morphology to express many states holding at utterance time, while Swahili (2) uses a perfect form with the same interpretive outcome.

(1) Kwanyama (R21, Namibia and Angola)
Onda hal-a oku-ly-a omandjebele.
SP_{1SG}.PST want-FV 15(INF)-eat-FV 6.grapes
'I want to eat grapes.'

(2) Swahili (G42, Tanzania and Kenya)
A-**me**-chok-a.
SP_1-PFCT-be(come)_tired-FV
'S/he is tired.'

Furthermore, perfective forms can often also be used with a state-change (transitional) reading, as in (3b); compare with (3a), which, in the absence of additional context, has the default interpretation of an ongoing state.

(3) Southern Ndebele (S407, South Africa)
a. U-Sipho wethuk-**ile**.
1A-Sipho SP_1.be(come)_frightened-PFV.DJ
'Sipho is frightened.'

b. Na-si-fik-a-ko, u-Sipho wethuk-**ile**.
SIT-SP_{1PL}-arrive-FV-REL 1A-Sipho SP_1.be(come)_frightened-PFV.DJ
'When we arrived, Sipho got frightened.'

Often, verbs that express ongoing states (and sometimes state changes) with perfective morphology have a coming-to-be reading (encoding a change prior to a resultant state) with present or imperfective morphology, as in (4).

(4) Swahili
A-**na**-chok-a.
SP_1-PRS-be(come)_tired-FV
'S/he is getting tired.'

As suggested by these examples, the perfective–imperfective alternation in many Bantu languages, and likely in much of Niger-Congo, functions differently from what is typically understood as a "canonical" perfective–imperfective system cross-linguistically (see Polančec forthc. for a comparison).[1]

Research in Bantu (and Niger-Congo) actionality and the lexicon–grammar interface has taken a number of approaches to accounting for these data; most prominent in recent years has been the influential framework put forward in the work of Robert Botne and Tiffany Kershner (e.g. Botne 1983; Kershner 2002; Botne & Kershner 2000, 2008). Crane & Persohn (2019a,b) give overviews and discussion of the Botne & Kershner framework, along with other models applied to Bantu actionality.

In this paper, we abstract away from specific theoretical approaches. Instead, we focus on empirical evidence regarding the patterns of behaviour of actional classes across aspectual frames in Southern Ndebele and Xhosa.

2.3. Terminological and presentational conventions. Following Johanson (2000) and Tatevosov (2002), among others, in this paper we speak of ACTIONALITY instead of "lexical aspect", "Aristotelian aspect", "situation type", "aktionsart", or similar labels. Following Binnick (1991), we understand actionality as the constituent phases and boundaries that make up a state-of-affairs, derived from the interaction of a verb's meaning along with its possible argument configurations and the bounding potential that these configurations bring about (Sasse 2002).[2]

When we claim that a verb "encodes" something, we mean that it is part of the verb's lexical make-up, and that the phase or boundary in question can be directly targeted using morphosyntactic aspect(/tense) operators.

We use STATE-OF-AFFAIRS as an umbrella term for what is sometimes called "events", "eventualities", "actions", and the like. This corresponds to Comrie's (1976) use of "situation".

The term CHANGE-OF-STATE VERB is used to refer to a member of the set of verbs whose phasal configurations include a transition from one state to another on part of the subject. An important class of change-of-state verbs are INCHOATIVE VERBS. Inchoative verbs, in addition to encoding a transition between states, lexically encode a RESULTANT PHASE (which we also refer to as a RESULTANT STATE, since, to the best of our knowledge, this resultant phase is generally

[1] Botne (forthc.) offers perhaps the most detailed theoretical framework for the analysis of Bantu aspect systems; Nurse (2008) provides the broadest typological overview, adopting more cross-linguistically canonical definitions of aspect categories.

[2] Phasal approaches to actionality differ in whether they analyse the punctual boundaries that delimit one or more temporally extended phase(s) as a phase of their own; see Crane & Persohn (2019b) for discussion. As this theoretical issue has no direct bearing on the primarily descriptive goal of the present paper, we remain agnostic.

interpreted as stative in the languages we investigate here). A special subset of inchoative verbs, already referred to in Section 2.2, are TWO-PHASE VERBS. Two-phase verbs, as suggested by their name, lexicalize two phases: a COMING-TO-BE PHASE, which encodes the process leading up to a transition into the second phase, the RESULTANT STATE. Inchoative verbs may or may not lexicalize a coming-to-be phase, while two-phase verbs lexically encode both phases. NON-INCHOATIVE VERBS do not lexically encode a resultant phase; we will distinguish between NON-INCHOATIVE ACTIVE VERBS and NON-INCHOATIVE STATE VERBS in this article.

In other words, inchoative verbs lexically encode (at least) a resultant state, and they form a major subtype of change-of-state verbs; two-phase verbs, in turn, are a subtype of inchoative verbs, encoding both a coming-to-be phase and a resultant state. Non-inchoative verbs, which do not lexically encode a resultant state, can be either active verbs or state verbs. Although this partial classification might suggest a tree-like diagrammatic representation, we do not offer one here: we wish to avoid the false impression that the classes mentioned are exhaustive or static, and we do not want to overemphasize the significance of any hierarchical structures suggested.[3] See Polančec (2020: 12–13) for succinct discussion of some issues related to determining actional classes and sorting verbs into them.

The term STATE CHANGE refers to a type of reading in which the change (transition) from one state to another is profiled (in opposition to an ONGOING-STATE reading).

Finally, we refer to UTTERANCE TIME as the time at which a linguistic utterance is produced and the default perspective time (that is, the time at which the truth value of an utterance is evaluated, including its tempo-aspectual interpretation). In practice, the perspective time is contextually determined, but, unless otherwise noted, the fixing of perspective time at utterance time is sufficient for our analyses.

When mentioning tense-aspect forms (grams) in particular languages, we refer to categories such as "perfective" and "imperfective". These should be understood as labels for language-specific tense-aspect frames. Formal theoretical description of the tense-aspect categories is necessarily beyond the scope of the paper.

In citing a verb's lexical meaning, we are referring to a specific sense of that verb. For example, *funda* can mean 'learn', 'study', or 'read'. While these meanings are obviously connected (and therefore constitute a case of polysemy and not mere homophony), we make claims about actional structures for specific senses, and cite those senses in the glosses and discussion. Different senses of a verb may or may not have the same actional characteristics (see Polančec 2020: 15–17 for further discussion). Therefore, if the same lexical item has different glosses in different examples, it is because we are referring to different senses of that lexical item.

Examples given throughout the paper are, generally speaking, valid for both Xhosa and Southern Ndebele. If an example has been verified for only one of the two languages, the language name is given at the beginning of the example. If an example shows verbal behaviour that we have found to be possible in one language, but not in the other, this distinction is additionally indicated in the descriptive text. Examples that have been tested in both languages and found to have the same semantic effects, but which have small phonological, orthographic, or vocabulary differences, are marked with the ISO 693-3 codes (xho) for Xhosa and (nbl) for Ndebele immediately following the example text, to indicate the language from which they are drawn. In these cases, the verbs under discussion are either identical or cognate. We do not assume that near translational equivalents will

[3] One challenging issue is the systemic status of change-of-state verbs that do not appear to lexically encode a resultant state. We discuss such verbs briefly in Section 6.3; see also Crane & Persohn (2019a).

necessarily have the same actional characteristics, even if they behave similarly in the example in question.

We use the hash symbol (#) to mark infelicitous examples, that is, examples that are not grammatically ill-formed but unacceptable for semantic or pragmatic reasons. We translate such examples with "Intended:", giving one or more possible English versions of the sentence as it might be understood were it felicitous. A translation preceded with "not:" indicates that the sense is not a possible translation of the Southern Ndebele or Xhosa example. A hash symbol before an English translation indicates that the English sentence is also ill-formed because of clashes in meaning. A question mark (?) before an example (or an English translation) indicates that speakers were unsure about the felicity, or that there was a difference across speaker judgments; in the latter case, we describe this difference in the text, as well.

3. Sources and methodology

3.1. The Nguni languages. The Nguni languages are a group of closely related Bantu languages and dialects in the S40 group in Guthrie's (1967–1971) referential classification (see Hammarström 2019 for a recent inventory). The Nguni languages constitute a branch of Southern Bantu (Janson 1991) and are spoken in South Africa, Lesotho, Eswatini, and Zimbabwe. In this paper, we focus on two Nguni languages, Southern Ndebele and Xhosa.

Despite their relatively robust documentation (especially of Zulu and Xhosa), there have been few dedicated studies of actionality and aspectual grammar–lexicon interactions across the Nguni languages, although numerous descriptions make reference to verb classes and the importance of inchoative (sometime called "stative") verbs in Nguni aspectual systems (e.g. Beuchat 1966; P. Nichols 2011; and Savić 2020, among others). Botne & Kershner (2000) deal with the analysis of inchoative verbs in Zulu more directly, mainly with regard to how they interact with perfective (or "perfect") morphology.

3.1.1 Southern Ndebele. Southern Ndebele, also called Southern Transvaal Ndebele (*isiNdebele* [i.si.ⁿdɛˈɓɛːlɛ] in the language itself, as well as in the South African constitution) is spoken mostly in the Mpumalanga and Gauteng provinces of the Republic of South Africa. Its ISO 693-3 code is *nbl*. In the updated version of Guthrie's referential classification of Bantu languages, Southern Ndebele receives the code S407 (Maho 2009).

According to South Africa's 2011 census (cited in Eberhard et al. 2020), Southern Ndebele has approximately 1,1 million L1 speakers, the lowest number for any of South Africa's eleven official languages. There is also a significant number of L2 speakers: Webb (2002: 78) estimates 1,4 speakers of Southern Ndebele as a non-home language. It is worth noting that concepts like L1 and L2 may have limited value in highly multilingual contexts such as South Africa.

Southern Ndebele should not be confused with a similar Nguni language called Ndebele (also isiNdebele, North(ern) Ndebele, Zimbabwean Ndebele), spoken mostly in Zimbabwe (Guthrie code S44), or with the other South African Ndebele language (Guthrie code S408, no ISO 693-3 code; sometimes called Northern "Transvaal" Ndebele, Sendebele, Sumayela Ndebele, etc.). Ndebele S408 is spoken mostly in South Africa's Limpopo province (see, e.g., Ziervogel 1959; Aunio & Fleisch 2019).

Southern Ndebele has two major varieties, known as Ndzundza and Manala. Data for this article were elicited with speakers of both varieties. No clear differences between the two varieties emerged with regard to actional phenomena.

Southern Ndebele examples are given in the official Southern Ndebele orthography (PanSALB 2005, 2008a).

3.1.2 Xhosa. Xhosa (*isiXhosa* [i.si.ˈǂʰɔ́ː.sa] in the language itself, as well as in the South African constitution) is spoken predominantly in the Eastern Cape Province of the Republic of South Africa. Xhosa's ISO 693-3 code is *xho*. In the updated version of Guthrie's referential classification Xhosa receives the code S41 (Maho 2009). According to Ethnologue (Eberhard et al. 2020), there are around 19 million speakers of Xhosa, of which 8 million are L1 speakers. Xhosa examples are given in the official Xhosa orthography (PanSALB 2008b), which is quite similar to that for Southern Ndebele.

3.2. Data collection and methodology. Data on Southern Ndebele were collected over the course of several research trips to South Africa in 2105 and 2016 by Thera Crane and colleagues, and during a 2017 visit to the University of Helsinki by Dr Peter Mabena (University of South Africa), a scholar and speaker of Southern Ndebele. Follow-up data were elicited via e-mail discussions, mostly with Dr Mabena. The Xhosa data were collected at Rhodes University in Makhanda, South Africa, over the course of several trips in 2018 and 2019 by Bastian Persohn.

In Southern Ndebele, Thera Crane and Axel Fanego (né Fleisch) discussed some 30 verbs in semi-structured long-form interviews (often taking an hour or more per verb), along with less formal and extensive discussions of a number of other verbs (see Crane & Fleisch 2019 for further methodological details). Over the course of the interviews, we came to understand better which contexts are more relevant for actionality, and we were able to review another 50 or so verbs somewhat more quickly. Whenever possible, we conducted interviews with more than one speaker, or confirmed interview findings with other speakers; however, in some cases, we were only able to consult with one speaker. In Xhosa, approximately 65 verbs were investigated in detail, with information on additional verbs elicited as needed; each interpretation was cross-checked with at least two speakers.

The selection of verbs for investigation can influence the resulting categorization, and we therefore will briefly describe our selection process here. We selected the first group of verbs to test in Southern Ndebele by listing a large number of verbs from the Southern Ndebele – English dictionary (Iziko lesiHlathululi-mezwi sesiNdebele 2006), categorising them into rough groups based on the researchers' experience in investigating aspectuality in other Bantu languages, and then selecting a sample of verbs from each group. We thereby aimed to cover the breadth of actional classes in Southern Ndebele and to mitigate the risk that smaller classes with lower frequency verbs would be missed in the study. Additional verbs were added as the study proceeded and we gained new insights about potentially interesting contrasts. Jerro's (2017) study of change-of-state verbs in Kinyarwanda was an important source of additional verbs for testing. To facilitate comparison, the Xhosa investigation focused on many cognates and translational equivalents of the verbs studied in Southern Ndebele, along with other verbs selected to represent a broad variety of semantic classes. This selection process likely uncovered interesting characteristics of the actional classes in Southern Ndebele and Xhosa; however, it does *not* represent a random sample of verbs from which statistical generalizations on frequency or relative class size can be drawn.

When eliciting felicity judgments, we focused on a specific sense of a verb's (or predicate's) meaning, also noting whether other senses of the same verb might be felicitous in that context. As noted above, felicity judgments given throughout this paper should be understood to

apply to the specific frame and interpretation noted in the example. We have tried to give as much information as possible about possible alternative interpretations when relevant.

Most of the data were gathered through direct elicitation – supplemented with data from written corpora and social media – with first-language speakers of Southern Ndebele and Xhosa, following the principles of elicitation outlined in Matthewson (2004; see also the papers in Bochnak and Matthewson 2015, especially Bar-el 2015; Crane & Fleisch 2019). In this paper, we discuss only a portion of the tests we employed. Crane & Fleisch (2019) discuss more of the tests and how they might be adapted for comparative studies across Bantu languages. In addition to direct elicitation, data were taken from written corpora and social media posts (especially for Xhosa)[4] and the 2012 Southern Ndebele translation of the Bible (Bible Society of South Africa 2012).

3.3. Methodological and theoretical limitations. In the spirit of the methodological precision and transparency we have called for in previous work, we outline some of our study's limitations here.

Because the data were collected through two different projects and on two distinct, though related, languages, it was not possible to analyse completely parallel data in all cases. Furthermore, although we made use of corpus data to verify that certain interpretations are attested, more extensive, quantitative corpus work would be necessary in order to shed light on usage patterns. Most of the data in this paper are based on speaker intuitions shared in targeted elicitation sessions, and they should therefore be understood as having both the benefits and drawbacks of this kind of data.

Actionality can be a rather slippery topic, with many contextual factors at play in the interpretation of any particular grammar–lexicon interaction; a speaker's interpretation or judgment of a specific example in a specific context may not reflect the full actional potential of the lexical item involved. For this reason, and because the studies were conducted using a limited number of lexical verbs and verb phrases, we do not attempt to give a definitive classification of actional types in Southern Ndebele and Xhosa, nor to assign lexical items to rigid categories. Instead, we aim to describe significant tendencies and patterns in the languages' actional systems.

4. The inchoative–non-inchoative divide

An important actional divide in Southern Ndebele and Xhosa occurs between inchoative verbs, which lexically encode resultant states, and non-inchoative verbs, which do not. Within non-inchoative verbs, a further division is seen between active and state verbs. Non-inchoative state verbs differ from inchoative verbs in that the present-state reading of non-inchoative states is expressed with the imperfective aspect, rather than with perfective frames.

In this section, we introduce these three classes – inchoative verbs, non-inchoative active verbs, and non-inchoative state verbs – and show how they exhibit systematically different behaviour from one another across a variety of tense and aspect frames. In Section 4.1, we introduce the tense-aspect frames used in this section's analysis. Section 4.2 then describes the interactions of the three actional classes with imperfective frames, and Section 4.3 deals with perfective frames. Section 4.4 summarizes and compares the three types across frames.

[4] The following raw Xhosa corpora were consulted: the Genre Classification Corpus (Snyman et al. 2012), the African Speech Technology (AST) Text Corpus (Roux et al. 2001), and the National Centre for Human Language Technology (NCHLT) Text Corpus (Eiselen & Puttkammer 2014).

4.1. Tense and aspect frames used in the analysis. As is common in Bantu languages (Nurse 2008), both Southern Ndebele and Xhosa have an extensive array of tense/aspect configurations, many expressed through verbal affixes. These include at least two degrees of past reference, several basic expressions of future reference, and a number of aspectual distinctions.[5] In this section, we will describe the four morphosyntactic frames most relevant to our analysis: perfective and imperfective forms unspecified for tense, along with the phasal polarity "persistive" prefix *sa-* 'still' and the free morpheme *soloko*, which indicates recurrent states-of-affairs. Our discussion in this section mostly relates to morphological issues, with brief notes on semantics as necessary for understanding the phenomena described in the rest of the article.

4.1.1 Imperfective ya-/ø and perfective -ile/-e. Without additional context, perfective (*-ile*/*-e*) and imperfective (*ya-*/ø-) forms unspecified for tense are evaluated for truth-value at utterance time. In general, perfective forms can have perfect-like, simple past, or ongoing (present) state interpretations.[6] Imperfectives usually have present progressive or habitual interpretations. Further interpretive possibilities are discussed in the relevant sections below.

The basic morphological make-up of the tenseless perfective and imperfective paradigms is summarized (in slightly simplified form) in Table 1. Table 1 also includes short examples of each form with the verb *funda* 'read' and a sample translation into English. Other English interpretations (including some with different aspectual values) are also possible, as we discuss briefly below.

Table 1: Conjoint and disjoint paradigms

Aspectual paradigm	Sub-paradigm	Shape	Example with sample translation
Imperfective	conjoint	*Ø-…-a*	*ba-**Ø**-fund-**a** incwadi* 'they are reading a book'[7]
	disjoint	*ya-…-a*	*ba-**ya**-fund-**a*** 'they are reading'
Perfective	conjoint	*…-e*	*ba-fund-**e** incwadi* 'they read [PST] a book'
	disjoint	*…-ile*	*ba-fund-**ile*** 'they read [PST]'

As seen in Table 1, the untensed and imperfective paradigms are made up of two sub-paradigms each, commonly referred to as "conjoint" (CJ) and "disjoint" (DJ) forms. Van der Wal (2017) summarizes the main characteristics of these sub-paradigms, which are fairly common across Eastern and Southern Bantu, as follows:

> The conjoint/disjoint alternation is an alternation between verb forms that are formally distinguishable, that are associated with an information-structural

[5] For more detailed expositions of the tense-aspect systems of Xhosa and Southern Ndebele, see Savić (2017, 2020) for Xhosa and Crane et al. (in prep.) for Southern Ndebele.

[6] The *-ile*/*-e* form is also sometimes referred to as a "near past perfective" (e.g. Savić 2017) or a "perfect". Although it frequently has interpretations that are readily translated by the English Perfect, it neither shows the restrictions that are seen with perfect grams in many languages – for example, it occurs freely with past temporal adverbials – nor is it the primary marker associated with several typical functions of perfects, such as experiential perfect (expressed with auxiliary *khe* 'ever'; see, e.g., Oosthyusen 2016: 296 on Xhosa) and perfect of persistent situation (also known as universal perfect). Most crucially, a sense of present relevance is not an inherent part of *-ile*/*-e*'s semantics.

[7] Note that *incwadi* means both 'book' and 'letter'; when it appears in examples throughout this paper, we give it the sense that was used in the elicitation context.

> difference in the interpretation of verb and/or following element and of which one form is not allowed in sentence-final position. (Van der Wal 2017: 15)

Much has been written about the conjoint/disjoint alternation in Nguni languages (see Van der Wal 2017, Van der Wal & Hyman 2017 for overviews). Basically speaking, conjoint forms share constituency with the following word(s), while disjoint forms occur at syntactic phrase boundaries. In general, therefore, conjoint forms cannot occur in sentence-final position.

Sometimes, the conjoint/disjoint contrast is associated with different aspectual interpretations. Typical (but defeasible) aspectual interpretations associated with this contrast in the imperfective paradigm are given in (5). Note that we include a null morpheme with the conjoint only in (5, 6), in order to show the contrast between the imperfective forms more clearly.

(5) Southern Ndebele

a. Progressive conjoint
Ngi-ø-dl-a umengo.
SP_{1SG}-CJ-eat-FV 3.mango
'I am eating (a/the) mango.'

b. Non-progressive disjoint
Ngi-**ya**-wu-dl-a umengo.
SP_{1SG}-DJ-OP_3-eat-FV 3.mango
'I (do/can) eat mango.'

As shown in (6), the aspectual contrast between conjoint and disjoint forms is typical but not part of the basic semantics of the forms: progressive and habitual readings are available for both forms (see also Buell 2005: 144–146 on this phenomenon in Zulu).

(6) a. Conjoint
Ngi-ø-cul-a iculo. (nbl)[8]
SP_{1SG}-CJ-sing-FV 5.song
'I am singing a song.'
'I sing a song.' (e.g. every day)

b. Disjoint
Ngi-**ya**-cul-a. (nbl)
SP_{1SG}-DJ-sing-FV
'I am singing.'
'I sing.'

The implicature of an aspectual contrast shown in (5) appears to be due to non-constituency of the object, associated with, in this case, focus on the disjoint-marked verb rather than its object: focus on the verb lends itself more naturally to an interpretation emphasising its truth-value, and therefore (often) a non-progressive reading. Some similar effects are seen with perfective forms; see

[8] As noted in Section 2.3, ISO codes given in parentheses after an example indicate the language of the example in the case of identical interpretations but minor phonological, orthographic, or vocabulary differences between Southern Ndebele and Xhosa.

Crane & Fanego (2020) for discussion of Southern Ndebele. For the purposes of this article, the conjoint/disjoint distinction can be assumed to play a minimal semantic role.

The perfective is also subject to a morphophonologically conditioned process called "imbrication" (Bastin 1983), where it fuses with the root or extended root (that is, the root plus any derivative suffixes, some of which regularly condition imbrication), as illustrated in (7).[9]

(7) Ba-hlang**ene**.
Ba-hlangan-ile
SP_2-come_together-PFV.DJ
'They are meeting.'
'They (have) met.'

We consider the perfective aspect to be formally marked and the imperfective aspect to be formally unmarked. We therefore gloss perfective *-ile* and *-e*, and their morphological variants as PFV.DJ and PFV.CJ, respectively, while in the imperfective paradigm we gloss *ya-* only as DJ. The final vowel *-a* is a default marker that appears in many tense/aspect forms lacking dedicated suffixes, and so we merely gloss it as FV (final vowel), following a common convention in Bantu linguistics.

4.1.2 Persistive sa- and the 'all the time' marker soloko. Two further, broadly aspectual, markers are also used as diagnostic tools in our analysis: the persistive prefix *sa-* 'still' and the morpheme *soloko* 'always, constantly, all the time', which can occur with or without subject marking. For *sa-*, we have extensive data from both languages, whereas data for *soloko* come only from Xhosa.[10] These markers occur in both perfective and imperfective paradigms.

The prefix *sa-* (with an allomorph *se-* in specific contexts) is a marker of the phasal polarity (van Baar 1997) concept of STILL, which indicates the continuation of a situation and the contrast with an alternative (current or future) scenario in which the situation has ceased (see Persohn in prep.). Such grammaticalized STILL-markers are common across Bantu, where they are typically called "persistive".[11] Persistive *sa-* can co-occur with virtually all other tense and aspect paradigms, and its interpretation and acceptability depend on the inherent actional qualities of the verb in question; it is thus an excellent diagnostic of some facets of actionality. (8) gives an example of *sa-* in a present-tense context.

(8) Ba-**sa**-fund-a.
SP_2-PERS-read-FV
'They are still reading.'
'They still read.'

[9] The imbrication process and its interactions with aspectual interpretations differ somewhat between Xhosa and Southern Ndebele; the situation appears to be slightly more complicated in the latter language. For discussion of imbrication in Southern Ndebele (and its apparent contrasts with its close relative Zulu), see Crane & Fanego (2020). For the purposes of this article, unless otherwise noted, it can be assumed that the imbricated forms given in examples do not differ from non-imbricated forms in their relevant aspectual interpretative possibilities.

[10] *Soloko* is also used in Southern Ndebele, but data on its interactions with actional types were not systematically elicited.

[11] This aspect is, for understandable reasons, frequently referred to as the "progressive" in studies of Nguni languages (e.g. Doke 1954) however, its semantics deviate sharply from typical understandings of progressive aspect (see Mair 2012). Under negation, *sa-* expresses the negative phasal polarity concept NO LONGER. Other meanings with *sa-* (e.g. 'up until this point, only…') are also possible in specific contexts, as described below.

The morpheme *soloko*[12] 'always, constantly, all the time' indicates that a process or state always or continually holds true (Oosthuysen 2016: 290). It optionally takes a subject marker, and its complement figures in a dedicated subordinate form of the verb.[13]

(9) **Soloko** be-fund-a. (xho)
always $SP_{2.}$SUBORD-read-FV
'They're always reading.'

With this basic information in mind, we can move on to more detailed discussion of the imperfective and perfective paradigms and their interactions with major actional types, first in forms without additional specification for grammatical aspect, and then with persistive *sa-* and the 'all the time' marker *soloko*. The discussion of perfective frames in Section 4.3 also includes pairings with temporal measure adverbials.

4.2. (Non-)inchoative verbs and imperfective aspect. In this section, we describe the interactions of non-inchoative active verbs, non-inchoative state verbs, and inchoative verbs in imperfective frames, first without additional morphology (Section 4.2.1), and then with persistive *sa-* (Section 4.2.2) and the 'all the time' marker *soloko* (Section 4.2.3). Imperfective forms unmarked for tense generally target ongoing or repeated states-of-affairs, but not all verbs can have both kinds of readings.[14] However, this difference is more relevant to class-internal divisions than to the three main verb types we posit here. Instead, the difference between inchoative verbs and non-inchoative state verbs relates to whether the state described has already been attained in imperfective contexts.

4.2.1 Interpretive possibilities with bare imperfective forms (ya- and ø-).
Non-inchoative active verbs. With many active, non-change-of-state verbs, imperfective *ya-* and its conjoint counterpart have, at least, progressive, habitual, and generic interpretations. Performative uses are also occasionally seen. A non-inchoative active verb with typical interpretations is shown in (10), repeated from (6).

(10) a. Ngi-ya-cul-a. (nbl)
SP_{1SG}-DJ-sing-FV
'I am singing.'
'I sing.'

b. Ngi-cul-a iculo. (nbl)
SP_{1SG}-sing-FV 5.song
'I am singing a song.'
'I sing a song.' (e.g. every day)

[12] *Soloko* is a grammaticalization of the imbricated perfective stem *sele* of the inchoative verb *sala* 'remain', which has fused with the locative demonstrative *oko* (Oosthuysen 2016: 290).
[13] The subordinate is often referred to as the "participial mood" (Doke 1954; McLaren 1936) or "situative mood" (Oosthuysen 2016a). In formal terms, the subordinate paradigms are mostly characterized by prosodic changes as well as changes in the vowels of certain subject prefixes. Further, there is no overt *ya-* prefix in the subordinate present imperfective tense.
[14] Futurate uses are less relevant for our purposes and are therefore not dealt with here. Preliminary evidence from Southern Ndebele suggests that futurate uses of non-inchoative state verbs are rare, if they exist at all. This is a topic to be followed up on in further research.

Non-inchoative state verbs. With non-inchoative state verbs, the imperfective indicates an ongoing state (temporary or long-term), as in (11).

(11) a. U-Sipho u-ya-gul-a.
1A-Sipho SP_1-DJ-be_ill-FV
'Sipho is sick.'
(also possible in some contexts: 'Sipho gets sick.' [frequently])

b. Indoda i-thand-a umfazi.
9.man SP_9-love-FV 1.woman
'A/the man loves a/the woman.'

Inchoative verbs. Unlike with the state verbs in (11) above, imperfective forms generally do not indicate ongoing states when paired with inchoative verbs. Rather, they indicate a state that is coming to be (12) or a habitual or characteristic state (13).

(12) a. Ikosi i-ya-din-w-a. (nbl)
9.king SP_9-DJ-tire-PASS-FV
'The king is getting tired.'
(in some contexts, can also have generic/habitual reading, e.g., 'The king gets tired.')

b. Ikosi i-din-w-a khulu (nbl)
9.king SP_9-tire-PASS-FV a_lot
'The king is getting very tired'
(can also have generic/habitual reading, e.g., 'A king gets very tired.')

(13) U-Sipho u-ya-thul-a.
1A-Sipho SP_1-DJ-keep_quiet-FV
'Sipho keeps quiet.' (habitually)
(not: 'Sipho is getting quiet right now' or 'Sipho is being quiet right now')

With some inchoative verbs, the habitual meaning is so strong that it has been extended to more idiomatic interpretations, as in (14).

(14) U-Sipho u-ya-lamb-a.
1A-Sipho SP_1-DJ-be(come)_hungry -FV
'Sipho is poor' (extended from 'Sipho [habitually] gets hungry'.)
(generally not: 'Sipho is getting hungry', although one of our Southern Ndebele consultants allows this reading)

4.2.2 Interpretive possibilities with persistive sa- and imperfective aspect. Verbs with persistive *sa-* in the untensed imperfective generally have either an ongoing-process/state reading, or a habitual/generic reading. Examples are given in (15–19). Some verbs only allow one or the other

reading; other inchoative verbs are rarely used with *sa-* (at least in non-habitual, single-event contexts).[15]

Non-inchoative active verbs. Non-inchoative active verbs typically have both progressive and habitual readings with persistive *sa-*.

(15) U-Sipho u-**sa**-cul-a.
1A-Sipho SP$_1$-PERS-sing-FV
'Sipho is still singing.'
'Sipho still sings.'

Non-inchoative state verbs. With non-inchoative state verbs, an ongoing-state reading appears to be the most natural interpretation, although habitual state-change readings may be available in special cases.

(16) *U-Sipho* *u-**sa**-gul-a.*
1A-Sipho SP$_1$-PERS-be_ill-FV
'Sipho is still sick.'
(seemingly marginal: 'Sipho still gets sick.')

Inchoative verbs. Inchoative verbs potentially have both ongoing coming-to-be readings and habitual readings with persistive *sa-* plus imperfective aspect (17), with certain verbs preferring one or the other interpretation (18), and some only allowing a habitual reading (19).

(17) Abantu ba-**sa**-hlangan-a.
2.person SP$_2$-PERS-come_together-FV
'The people are still coming together'
'The people still come together.' (regularly)

(18) Umratha u-**sa**-phol-a. (nbl)
3.porridge SP$_3$-PERS-cool_down-FV
'The porridge is still cooling.'
(less common: 'Porridge still cools down.')

(19) U-Sipho u-**sa**-hlunam-a. (nbl)
1A-Sipho SP$_1$-PERS-be(come)_sad-FV
'Sipho still becomes sad.'
(dispreferred or disallowed: 'Sipho is still becoming sad.')

4.2.3 Interpretive possibilities with soloko 'all the time' and imperfective aspect. Imperfective frames with *soloko* 'always, constantly, all the time' bring out an important distinction between non-inchoative and inchoative verbs: what is habitual with inchoative verbs is a *change* rather than a state-of-affairs.

[15] This distinction will serve as one diagnostic of coming-to-be phases with inchoative verbs, discussed in Section 5.1.2.

Non-inchoative active verbs. Non-inchoative active verbs have the reading of a habitual state of affairs with *soloko* in imperfective contexts, as in (20).

(20) Xhosa
Ndi-soloko ndi-dlal-a.
SP_{1SG}-always SP_{1SG}.SUBORD-play-FV
'I'm always playing.'

Non-inchoative state verbs. Similarly, non-inchoative state verbs are interpreted as describing a state that habitually or constantly holds, as in (21).

(21) Xhosa
U-ya-fan-a no-dadewethu, **soloko** **e-gul-a**.
SP_{2SG}-DJ-resemble-FV COM.1A-sister.$POSS_{1PL}$ always SP_1.SUBORD-be_ill-FV
'You are like my sister. She is always ill.'

Inchoative verbs. In contrast to non-inchoative verbs, inchoative verbs in imperfective contexts with *soloko* convey that a change repeatedly occurs – not that a state constantly holds.

(22) Xhosa
Ndi-soloko **ndi-din-w-a** xa ndi-fund-a.
SP_{1SG}-always SP_{1SG}.SUBORD-tire-PASS-FV if/when SP_1.SUBORD-study-FV
'I always get tired when I study.'
(not: 'I am always tired…')

4.3. (Non-)inchoative verbs and perfective aspect. As previewed in the introductory sections, the most salient difference between inchoative and non-inchoative verbs is seen in their interactions with perfective aspect: non-inchoative verbs reference states or events (including state changes) in the past, while inchoative verbs can reference present states or (for many verbs) past state changes.[16] In this section, we lay out their interactions with bare perfective forms (Section 4.3.1), with persistive *sa-* (Section 4.3.2), and with the *soloko* marker (Section 4.3.3). The potential phasal targets of temporal measure phrases (e.g. 'in/for an hour') with perfective aspect differ across verb types, as well, and we discuss these in Section 4.3.4.

4.3.1 Interpretive possibilities with bare perfective (-ile/-e) forms.
Non-inchoative active verbs. With non-inchoative active verbs, the perfective is interpreted as a past state-of-affairs, which can be rendered in English as perfect or simple past, depending on the context, as illustrated in (22).

(22) Ngi-fund-ile. (nbl)
SP_{1SG}-study-PFV.DJ
'I (have) studied.'

[16] In Section 6.3, we will show that, in certain contexts, present-state readings can also be obtained for some verbs that are not canonically inchoative, if the situation referenced can be presented as having a subject-relevant resultant state.

Non-inchoative state verbs. With non-inchoative state verbs, which depict present states with the imperfective, perfective frames typically invoke either a past state or a past change into a state; in either case, the state is interpreted as no longer holding.

(23) U-Sipho u-gul-ile (izolo).
1A-Sipho SP_1-be_ill-PFV.DJ (yesterday)
'Sipho got sick / was sick (yesterday).'

Inchoative verbs. With inchoative verbs, which describe either habitual states or coming-to-be processes (leading to states) with the imperfective, the perfective has at least three possible readings. The most salient, with no additional context, is that of a state that holds at utterance time (or some other contextually determined time of reference), as in (24). When a time (point or span) is overtly specified or contextually salient, the perfective can reference a state change with (many of) these verbs (25). Finally, as we discuss below inchoative verbs can refer to a state that held over a span of time in the past when used with certain temporal adverbials (see exx. 39–41 below).

(24) U-Sipho u-dan-ile.
1A-Sipho SP_1-be(come)_disappointed-PFV.DJ
'Sipho is disappointed.'

(25) Southern Ndebele
Na-si-fik-a-ko, u-dan-ile.
SIT-SP_{1PL}-arrive-FV-REL SP_1-be(come)_disappointed-PFV.DJ
'When we arrived, s/he became disappointed.'

Southern Ndebele speakers tend to prefer other constructions for expressing state-change readings (see Crane & Fanego 2020), and state-change readings with the perfective may be even more strongly dispreferred in Xhosa. In the following, we focus primarily on whether verbs allow ongoing-state readings with perfective *-ile*/*-e*, although other readings are also examined. Ongoing-state readings are brought further into focus with the interpretations discussed in the following sections.

4.3.2 Persistive sa- and perfective aspect. As noted above, an important difference between inchoative and non-inchoative verbs is that the former often have a default ongoing-state reading when paired with perfective aspect. Persistive *sa-* with perfective aspect has the reading of a continued ongoing state, thereby providing further evidence for the inchoative–non-inchoative divide. However, there are some important caveats: first, persistive *sa-* can have other kinds of reading, as we discuss immediately below. Second, as shown in Section 5.2, the use of this phasal polarity marker is subject to a reversibility condition. Finally, even more than the bare perfective on its own, persistive *sa-* can sometimes coerce readings of subject-relevant states with verbs that otherwise do not appear to pattern with inchoatives. However, the ongoing-state meanings obtained with the persistive perfective are straightforward and context-independent default readings, and thus strengthen the evidence for lexically encoded resultant phases.

Several different readings are possible with the combination of persistive 'still' *sa-* and perfective *-ile/-e*. The first one is that of a resultant state that continues to hold – that is, a state that

has not yet ceased. (26) illustrates this reading: *vuleka* 'open' has an ongoing-state reading with the perfective, as shown in (26a). Use of *sa-* in (26b) adds the notion of persistence ('still open').

(26) Xhosa

a. L-amkel-e ithuba eli-vulek-**ile**-yo ngoku
OP$_5$-accept-IMP 5.chance REL.SP$_5$-open-PFV-REL.DJ now
'Accept the opportunity that is open now.'

b. L-amkel-e ithuba eli-**sa**-vulek-**ile**-yo
OP$_5$-accept-IMP 5.chance REL.SP$_5$-PERS-open-PFV-REL.DJ
o-noku-li-sebenz-is-a e-ku-phumez-eni
REL.SP$_{2SG}$-COM.15(INF)-OP$_5$-work-CAUS-FV LOC-15(INF)-achieve-FV.LOC
oku-ninzi
15(INF)-many
'Accept the opportunity that is still open and which you can use for many achievements.' (AST Text Corpus)

In specific contexts, the combination of the persistive and the perfective can indicate a restrictive reading along the lines of 'only' or 'just'. Such readings are illustrated in (27, 28).

(27) Southern Ndebele

a. Ngi-**sa**-dl-**e** kancani nje.
SP$_{1SG}$-PERS-eat-PFV.CJ a_little now
'I've just eaten a little portion for now.'

b. Umnganami u-John, ngi-**sa**-m-bon-**e** kabili.
1.friend.POSS$_{1SG}$ 1A-John SP$_{1SG}$-PERS-OP$_1$-see-PFV.CJ twice
'My friend John, up to now I've (only) seen him twice.'

(28) Xhosa

a. Ndi-**s**-akh-**e** le ndlu.
SP$_{1SG}$-PERS-build-PFV.CJ PROX$_9$ 9.house
'I have for now/only built this house.' (but might built at least one more)

b. Abantwana ba-**sa**-dlal-**ile**.
2.child SP$_2$-PERS-play-PFV.DJ
'So far the kids have played [well].' (but let's not get our hopes too high)

In Southern Ndebele, but to all appearances not in Xhosa, another possible reading of persistive *sa-* together with perfective *-ile/-e* is an iterative one, especially in cases where the event in question is irritating to the speaker.[17] This reading is illustrated in (29), in which the optional adverb *godu* 'again' highlights this reading.

[17] Extensions from 'still' to iteration are not uncommon from a cross-linguistic perspective. They are found, for instance, with Yiddish *nokh* (van der Auwera 1991: 170), French *encore* (van der Auwera 1998: 26), its Italian cognate *ancora* (Mosegaard-Hansen & Strudsholm 2008: 485), Mandarin Chinese *hái* (Liu 2000) and Classical Nahuatl (Uto-Aztecan) *oc* (Launey 1986: 1265), to mention just a few cases. The meaning 'again' is

(29) Southern Ndebele

a. U-Sipho u-**sa**-buy-**ile** (godu).
1A-Sipho SP_1-PERS-return-PFV.DJ again
'Sipho is back (yet) again.'

b. Idrayara i-**sa**-rhuny-ez-**e** irhembe (godu).
9.dryer SP_9-PERS-shrink-CAUS-PFV.CJ 9.shirt again
'The dryer shrank a shirt again.' (it happened another time)

In the remainder of this discussion, we ignore these 'only' or 'again' readings, focusing exclusively on ongoing-state readings obtained with *sa-…-ile/-e*, although we come back to the topic and discuss a possible link between the readings in Section 6.3.3.

Non-inchoative active verbs. Example (30) shows that with non-inchoative active verbs, the persistive-plus-perfective frame is infelicitous with an ongoing-state reading (30c).

(30) a. U-Sipho u-**sa**-tlol-a incwadi. (nbl)
1A-Sipho SP_1-PERS-write-FV 9.book
'Sipho is still writing a book.'

b. U-Sipho u-tlol-**e** incwadi. (nbl)
1A-Sipho SP_1-write-PFV.CJ 9.book
'Sipho wrote a book.'

c. #U-Sipho u-**sa**-tlol-**e** incwadi. (nbl)
1A-Sipho SP_1-PERS-write-PFV.CJ 9.book
Intended: '#Sipho has still written a book.'

(31) shows that the combination of persistive and perfective is also infelicitous with some change-of-state verbs such as *fika* 'arrive' (31a) and *buya* 'return' (31b), which encode a transition from one state to another on the part of the subject, but do not, we argue, lexically encode a resultant state – that is, they are not inchoative.

(31) a. #U-Sipho u-**sa**-fik-**ile**.
1A-Sipho SP_1-PERS-arrive-PFV.DJ
Intended: 'Sipho has arrived [and is still here].'

b. #U-Sipho u-**sa**-buy-**ile**.
1A-Sipho SP_1-PERS-return-PFV.DJ
Intended: 'Sipho has come back [and is still here].'

Non-inchoative state verbs. Similarly, the combination of the persistive and perfective is infelicitous with non-inchoative state verbs like *gula* (32). These verbs encode an ongoing state with the imperfective.

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also found in the related South African Nguni language Sindebele (Guthrie-Code S408) spoken primarily in the Limpopo Province.

(32) #U-Sipho u-**sa**-gul-**ile**.
1A-Sipho SP$_1$-PERS-be_ill-PFV.DJ
Intended: 'Sipho is still sick.'

As shown in (26) above, inchoative verbs have an ongoing-state reading in the persistive-plus-perfective frame. Further examples are given in (33).

(33) a. U-Sipho u-**sa**-khamb-**ile**. (nbl)
1A-Sipho SP$_1$-PERS-leave-PFV.DJ
'Sipho is still gone.'

b. Abantu ba-**sa**-hlang**ene**.
2.person SP$_2$-PERS-come_together.PFV.DJ
'(The) people are still (having a) meeting.'

As discussed further in Section 5.1, we take these readings as indicative of a lexically encoded result phase, the underlying assumption being that only a resultant state, but not a transition from one state into another can be extended in time; see Crane & Persohn (2019a: 24–28) for discussion of the validity of this test across Bantu. There is, however, an important caveat: the reading of a persistent state is only available with resultant states that are non-permanent, that is, reversible; see Section 5.2.1 for further discussion.

4.3.3 Soloko 'all the time' and perfective aspect. This section discusses data from Xhosa, since our current Southern Ndebele data on this construction are scant. We describe interactions with inchoative verbs first, because they are the verb type most naturally used in this context. Other verb types only appear in this frame in special contexts.

Inchoative verbs. With inchoative verbs in Xhosa, the combination of *soloko* 'always, constantly, all the time' and the perfective describes a state that habitually or constantly holds, as illustrated in (34).

(34) Xhosa

a. Xa u-m-ncanc-is-a idami qinisekis-a
if/when SP$_{2SG}$.SUBORD-OP$_1$-suckle-CAUS-FV 9.dummy ensure-IMP
ukuba i-**soloko** i-coc-ek-**ile** …
COMP SP$_9$-always SP$_9$.SUBORD-clean-NEUT-PFV.DJ
'When you make them [baby] suckle on the dummy, make sure that it [dummy] is always clean.' (Genre Classification Corpus)

b. Abantu abaninzi ba-**soloko** be-din-**iwe**
2.person 2.many SP$_2$-always SP$_2$.SUBORD-tire-PASS.PFV.DJ
ngalo lonke ixesha kuba ba-sebenz-a nzima.
INSTR.DEM$_5$ 5.all 5.time because SP$_2$-work-FV heavy
'Many people are constantly tired all the time because they work hard.' (NCHLT Corpus)

Non-inchoative (active and state) verbs. Verbs that do not have a reading of an ongoing state with the perfective are only compatible with the *soloko*-plus-perfective-frame in special contexts where they indicate that the relevant event repeatedly takes place before another event that it is framed against. This is illustrated in (35). Xhosa consultants pointed out that these uses would typically be understood as generalizations made over past behaviour (as opposed to strictly habitual statements), hence carry an evidential overtone.

(35) Xhosa

a. Xa ndi-m-hambel-a, **soloko** e-zob-**e**
if/when SP_{1SG}.SUBORD-OP_1-visit-FV always SP_1.SUBORD-paint-PFV.CJ
umfanekiso
3.picture
'When I visit him, he has always just painted a picture.'

b. U-Sipho **soloko** e-gul-**ile** xa ndi-fik-a.
1A-Sipho always SP_1.SUBORD-be_ill-PFV.DJ if/when SP_{1SG}.SUBORD-arrive-FV
'It's always the case that Sipho had just been sick when I get there.'

4.3.4 Perfective aspect and temporal measure phrases. In many Bantu languages, temporal measure adverbials are not distinguished for 'for' (unbounded) vs. 'in' (bounded) readings. Southern Ndebele (unlike Xhosa) additionally has a marker *nga-* that restricts temporal measure adverbials to 'in' readings; this marker is discussed in Section 5.3 below. The potential of 'for' vs. 'in' interpretations correlates with verb class (and to some extent with class-internal distinctions); there is also a class-internal distinction among inchoative verbs regarding which phase(s) can be targeted.

Non-inchoative active verbs. With non-inchoative active verbs, bare temporal measure adverbials can be translated as either 'for' or 'in'. Predicates with natural boundaries favour 'in' interpretations – the event is perceived as complete – but 'for' interpretations are also possible (36a). Predicates describing events without natural endpoints more typically receive 'for' interpretations (36b), although, as discussed further in Section 6.3, a bounded 'in' interpretation is also possible in certain contexts.

(36) a. U-Sipho u-dl-**e** umengo **imizuzu** **elishumi**. (nbl)[18]
1A-Sipho SP_1-eat-PFV.CJ 3.mango 4.minute 4.ten
'Sipho ate (the) mango in/for ten minutes.'

b. U-cul-**e** **iimveke** **ezimbili**. (nbl)
SP_1-sing-PFV.CJ 10.week 10.two
'S/he sang for two weeks.'

Non-inchoative state verbs. In both Xhosa and Southern Ndebele, a temporal adverbial modifying a perfective form can also reference the duration of a reversible state that held in the past, as in (37). This can be the state referenced by a non-inchoative state verb as discussed here, or the state

[18] Southern Ndebele speakers varied in whether they used *tjhumi* or *shumi* for 'ten'; Xhosa has *shumi*.

resulting from an inchoative verb's transition from one state-of-affairs to another, as discussed in the next subsection.

(37) a. Southern Ndebele
Amanzi a-qand-**e** **imizuzu** **elitjhumi**
6.water SP_6-be_cold-PFV.CJ 4.minute 4.ten
'The water was cold for ten minutes.'

b. Xhosa
… loo msebenz[i] u-gul-**e** **iintsuku** **ezimbini**
DEM_1 1.worker SP_1-be_ill-PFV.CJ 10.day 10.two
zi-landelelan-a ngexesha
REL.SP_{10}-form_single_line-FV INSTR.5.time
'... that employee was ill for two consecutive days.' (NCHL Text Corpus)

In Southern Ndebele, our current evidence suggests that at least some non-inchoative state verbs, such as *gula* 'be sick/ill', still have a relatively strong state-change reading ('got sick') with the perfective aspect, even though the temporal measure adverbial is still interpreted as indicating how long the state persisted (38a). However, speakers often prefer other forms, such as the past imperfective (38b), to express durational meanings with this type of verb.

(38) Southern Ndebele
a. Ngi-gul-**e** **iimveke** **ezimbili**.
SP_{1SG}-be_ill-PFV.CJ 10.week 10.two
'I got sick for two weeks.'

b. U-Sipho **be**-ka-gul-a **amalanga** **alitjhumi**.
1A-Sipho PST-SP_1-be_ill-FV 6.day 6.ten
'Sipho was sick for ten days.'

Inchoative verbs. As with non-inchoative state verbs, temporal adverbials modifying inchoative verbs with perfective aspect can reference the length of the associated state (39, 40).

(39) Southern Ndebele
U-Sipho u-thul-**e** **imizuzu** **elitjhumi**.
1A-Sipho SP_1-keep_quiet-PFV.CJ 4.minute 4.ten
'Sipho was quiet for ten minutes.'

(40) Xhosa
Ndi-lamb-**e** **iiyure** **ezininzi**.
SP_{1SG}-be(come)_tired-FV.CJ 10.hour 10.many
'I was tired for many hours.'

With some inchoative verbs, temporal measure adverbials can also target the coming-to-be phase, as in (41), where both phases can be targeted.

(41) Southern Ndebele

U-Finn	u-hlubul-**e**	**imizuzu**	**elitjhumi**.
1A-Finn	SP_1-undress-PFV.CJ	4.minute	4.ten

'Finn got undressed in ten minutes.' (coming-to-be reading)
'Finn was undressed for ten minutes.' (resultant state reading)

4.4. Summary of grammar–lexicon interactions. Table 2 summaries interpretations of the imperfective frames discussed above with major actional types. The most critical distinction is between inchoative and non-inchoative verbs. Not all interpretations are possible with every lexical verb or verb phrase,[19] and salient readings and compatibility with particular lexical items may vary between Xhosa and Southern Ndebele. Within the class of inchoative verbs, the (non-)availability of certain readings can help to identify differences in phasal structure, as shown in Section 5.1; specific readings can also be unavailable for other reasons, as discussed in Section 5.2.

Table 2. Possible interpretations of imperfective frames and major actional types

	Non-inchoative active verbs	**Non-inchoative state verbs**	**Inchoative verbs**
Imperfective alone	progressive, habitual, generic, performative, (futurate)	ongoing state, habitual state change	coming-to-be, habitual or characteristic state (or state change)
Persistive *sa-* (and imperfective)	(persisting) progressive, habitual, generic	(persisting) ongoing state, (marginal: habitual state change)	(persisting) coming-to-be, habitual or characteristic state (or state change)
***Soloko* and imperfective**	habitual or constant action	habitual or constant state	habitual state change

Table 3 summarizes interpretations seen with perfective frames. The caveats mentioned for Table 2 above apply here as well. Note again that we only focus on the felicity of ongoing-state 'still' readings with persistive *sa-* and the perfective. In some cases, 'only', 'for now', or '(yet) again' readings might (also) be available, but they are not considered in Table 3. The distinction between inchoative and non-inchoative verbs is especially clear in perfective contexts: inchoative verbs tend to refer to an ongoing resultant state, while non-inchoative verbs refer to past states-of-affairs, and thus cannot obtain ongoing-state readings in perfective frames that require non-past readings (such as *sa-* and *soloko*). Non-inchoative state verbs show their difference from active verbs in these frames, as well: although they do not encode resultant states like inchoative verbs, they do appear to privilege the left boundary, with perfective forms frequently making reference to the entry into the state.

[19] In the tables, we have noted a few places where verbs within a major group clearly split according to which readings are allowed, but there are additional differences between verbs within groups as well; we discuss some of these in Section 7. Tables 2 and 3 should be understood as listing the maximum range of readings observed with each verb type in each context.

Table 3. Possible interpretations of perfective frames and major actional types

	Non-inchoative active verbs	**Non-inchoative state verbs**	**Inchoative verbs**
Perfective alone	past event (perfect reading also possible)	past state-change, past state	ongoing (present) state, past state-change (this reading is often dispreferred)
'Still' reading with persistive *sa-* and the perfective	infelicitous	infelicitous	ongoing state (only possible with reversible states)
***Soloko* and perfective**	infelicitous without special context	infelicitous without special context	habitual or constant state
Perfective and (bare) temporal measure adverbials	duration of activity	duration of state (after transition into a state)	duration of state, (with some verbs) duration of coming-to-be phase

Now that we have established the important divide between inchoative and non-inchoative verbs (along with the presence of a smaller subclass of non-inchoative states), we can move on to deeper discussion of inchoative (Section 5) and non-inchoative (Section 6) verbs, their semantic properties and peculiarities, and (some of) their subclasses.

5. Inchoative verbs

As shown in Section 4, the distinguishing feature of inchoative verbs is their default resultant state reading in several perfective frames. In this section, we explore their properties in greater depth. We first introduce the subclass of two-phase verbs and give evidence that both a coming-to-be and a resultant phase are lexically encoded in some Nguni verbs (Section 5.1). In Section 5.2, we describe some of the challenges in testing for each of these phases. Then, in Section 5.3, we describe in greater detail the complicated interactions of inchoative verbs with temporal measure adverbials. In Section 5.4, we describe some features of inchoative verbs that do not seem to encode coming-to-be phases. Finally, Section 5.5 gives some notes on the roles of valency-changing verbal suffixes (often referred to as "extensions") in the behaviour of inchoative verbs.[20]

5.1. Evidence for two-phase verbs in Southern Ndebele and Xhosa. This section presents evidence for two-phase verbs, a subclass of inchoative change-of-state verbs that encode both a coming-to-be phase and a resultant phase. We highlight this subclass because of its importance for Bantu and the relative paucity of attention paid to it in typological literature (see Polančec forthc.). The facts described in this section add to the cross-linguistic evidence for the salience of this class in many Bantu languages; see, for example, Kershner (2002) on Sukwa (M301, ndh); Botne (2008) on Ndali (M301, ndh); Seidel (2008) on Yeyi (R41, yey); Crane (2011) on Totela (K41, ttl); Gunnink (2018) on Fwe (K402, fwe); Persohn (2017, 2018) on Nyakyusa (M31, nyy); Kanijo 2019 on Nyamwezi (F22, num); and Crane & Persohn (2019b) on Bantu in general.

It is important to note the difficulty of dividing the set of inchoative verbs – which, by definition, encode a resultant phase – into completely discrete subclasses based on whether a

[20] See Crane (ms.) for description of five possible subclasses of inchoative verbs in Southern Ndebele.

coming-to-be phase is encoded. We aim instead to give evidence that two-phase verbs are an important category in Nguni languages, and that some verbs clearly encode both a coming-to-be and a resultant phase. The lexical encoding of both phases is evidenced by their common uses with both interpretations and speakers' ready acceptance of the relevant readings even in the absence of contextual information that might coerce such readings.

5.1.1 Evidence for a resultant phase. We discuss the evidence for a resultant phase first, as it is definitional of inchoative verbs. As shown above, inchoative verbs with the perfective generally refer to an ongoing state in their default (context-independent) reading. This reading is brought into focus when the perfective combines with additional aspect markers, such as persistive *sa-* and the 'all the time' marker *soloko*. Verbs that by default have ongoing-state readings with the perfective can, generally speaking, also have them with the combination of the persistive and the perfective, showing that the targeted resultant state is more than an implicature. The same verbs have habitual or constant state readings with *soloko* plus the perfective.

(42) Xhosa

a. Ndi-din-**iwe**.
SP$_{1SG}$-tire-pass.PFV.DJ
'I am tired.'

b. Ndi-**sa**-din-**iwe**.
SP$_{1SG}$-PERS-tire-pass.PFV.DJ
'I am still tired.'

c. **Soloko** ndi-din-**iwe**.
always SP$_{1SG}$.SUBORD-tire-PASS.PFV.DJ
'I am constantly tired.'

It has been argued that perfective *-ile* most likely has its origins in a resultative form (see Botne 2010, who refers to the relevant aspect as "resultative perfective"), and it is tempting to analyse the ongoing-state readings as a function of resultative semantics. Another possible explanation is that the ongoing-state readings are based on implicature: a previous transition into a new state can being interpreted as an expression of a current state, as with many perfects cross-linguistically. We do not believe that either of these explanations is adequate to account for the Southern Ndebele and Xhosa data.

Speakers' use and ready acceptance of the perfective with persistive *sa-* and with *soloko* speak against these alternate accounts. If the present-state readings were gained through implicature, or simply because of resultative semantics, we would expect them to be construable for a much wider set of verbs – basically, any verbs with a plausible resultant state. Instead, as laid out in Section 4.3 above and summarized in Table 3, perfective forms with *sa-* and *soloko* consistently pattern together as felicitous with one set of verbs, such as *dinwa* in (42); and infelicitous with another set, even though the latter group includes state verbs like *gula* 'be ill' (43, repeated from 32) and verbs with easily construed real-world resultant states like *fika* 'arrive' (44, repeated from 32) and *akha indlu* 'build a house' (45).

(43) #U-Sipho u-**sa**-gul-**ile**.
1A-Sipho SP_1-PERS-be_ill-PFV.DJ
Intended: 'Sipho is still sick.'

(44) #U-Sipho u-**sa**-fik-**ile**.
1A-Sipho SP_1-PERS-arrive-PFV.DJ
Intended: 'Sipho has arrived.' (and is still here)

(45) Southern Ndebele
#U-**s**-akh-**e** indlu.
SP_1-PERS-build-PFV.CJ 9.house
Intended: 'S/he has still built a house.' (i.e. the house is still standing)

Furthermore, the same verbs that have ongoing-state readings in the persistive-plus-perfective frame and with *soloko* allow temporal measure adverbials that refer to the duration of the resultant state (46), adding to the evidence for a lexically encoded resultant state. Verbs that do not encode durative resultant states, as in (47), cannot have such an interpretation with temporal measure adverbials.

(46) Xhosa
Ndi-dinw-**e** **iiyure** **ezininzi**, nd-a-lal-a.
SP_{1SG}-tire-PASS-PFV.CJ 10.hour 10.many SP_{1SG}-CONSEC-sleep-FV
'I was tired for many hours, then I slept.'

(47) Southern Ndebele
#U-fik-**e** **i-iri** **loke**
SP_1-arrive-PFV.CJ 5-hour 5.one
Intended: 'He arrived [and stayed] for one hour.'
(Also not possible: 'It took him an hour to arrive.')

Finally, some inchoative verbs can be used in contexts in which a real-world state change never precipitated the resultant state, making it difficult to argue for straightforward resultative semantics or an implicature-derived resultant state based on direct reference to a preceding transition. Some examples are given in (48, 49); see also Jerro (2017) for discussion of Kinyarwanda (JD61, kin) inchoative verbs that do not require reference to a prior change. For example, (48a) does not mean that Brian is 'a person turned good'. Recall that only inchoative verbs have default ongoing-state readings in perfective frames.

(48) Xhosa
a. U-Brian ngum-ntu **o-lung-ile-yo.**
1A-Brian COP_1-person REL.SP_1-be_correct-PFV.DJ-REL.DJ
'Brian is a good person.'

b. Uku-theng-is-w-a kwabanthu ngu-m-sebenzi
15(INF)-buy-CAUS-PASS-FV 15.ASSOC.2.person COP$_3$-3-work
o-ngcol-ile-yo.
REL.SP$_3$-be(come) dirty-PFV.DJ-REL.DJ
'Human traffic is dirty work'.

c. Context: Talking about the geography of the Eastern Cape.
E-Bathurst **i-sondel-e** e-Port Alfred.
LOC-Bathurst SP$_9$-approach/be_close-PFV.CJ LOC-Port_Alfred
'Bathurst is near Port Alfred.'

(49) Southern Ndebele
Umntwana u-beleth-w-a **a-hlubul-e.**
1.child SP$_1$-bear-PASS-FV SP$_1$.SUBORD-undress.PFV.DJ
'A child is born naked.'
(not: 'A child is born undressed.')

5.1.2 Evidence for a coming-to-be phase. So far, we have seen that inchoative verbs lexicalize a resultant phase that can be targeted by the perfective. In this section, we present evidence that many of these verbs also lexicalize a coming-to-be phase. That is, they are not merely examples of cross-linguistically common (see Ebert 1995; Tatevosov 2002, among others) left-delimited states, which lexicalize the entrance into a state plus the ensuing state, but no coming-to-be phase.

Patterns of behaviour in tests targeting the coming-to-be phase are somewhat more complex than the patterns seen with tests for the resultant phase discussed above (Section 5.1.1); the behaviour of verbs with these tests varies depending on many factors beyond the presence vs. absence of a lexically encoded coming-to-be phase. Nevertheless, we see these tests, taken together, as providing strong evidence that some Nguni verbs do lexically encode both a coming-to-be phase and a resultant state phase, even if not all tests can be used with equal robustness to investigate all inchoative verbs.

As shown in Section 4.2.1, many inchoative verbs also allow coming-to-be readings with bare imperfective forms. These readings are sometimes also possible with persistive *sa-* (50), although the conditions allowing a coming-to-be reading with *sa-*, which are still under investigation, appear to be somewhat narrower than with plain imperfective forms. Verbs allowing these coming-to-be readings with the imperfective (and sometimes the persistive) also tend to allow the coming-to-be phase to be measured when perfective marking co-occurs with bare temporal adverbials (51c, also discussed in further detail below). Such readings are preferred in cases in which the change is visible and measurable, and the interactions are complex (see Section 5.2.2).

(50) Southern Ndebele
a. Irhembe i-**y**-om-a.
9.shirt SP$_9$-DJ-(be)come_dry-FV
'The shirt is drying out.'

b. Irhembe i-**s**-om-a.
9.shirt SP$_9$-PERS-be(come)_dry-FV
'The shirt is still drying out.'

(51) Southern Ndebele

a. U-Finn u-**ya**-hlubul-a.
1A-Finn SP_1-DJ-undress-FV
'Finn is getting undressed.'

b. U-Finn u-**sa**-hlubul-a.
1A-Finn SP_1-PERS-undress-FV
'Finn is still getting undressed.'

c. U-Finn u-hlubul-**e** **imizuzu** **elitjhumi**.
1A-Finn SP_1-undress-PFV.CJ 4.minute 4.ten
'Finn got undressed in ten minutes.' (coming-to-be reading)
'Finn was undressed for ten minutes.' (resultant state reading)

As with the ongoing-state perfective readings, we have to take into account the possibility that these readings are a general property of the aspectual operators. However, a number of change-of-state verbs do not allow, or at least require a good deal of contextual support for, coming-to-be readings with these operators. Examples of such verbs are given in (52). (52a) shows that *fika* 'arrive' cannot target a coming-to-be reading with a bare temporal adverbial. (52b–c) show that both the imperfective and the persistive with *qumba* 'get constipated' have habitual readings, rather than ongoing coming-to-be readings. Since coming-to-be readings are restricted to certain verbs, the distinction can be seen as a lexical one.

(52) Southern Ndebele

a. #U-Sipho u-fik-**e** **i-iri** **loke**.
1A-Sipho SP_1-arrive-PFV.CJ 5-hour 5.one
Intended: 'Sipho arrived in/after(/for) an hour.'

b. U-Sipho u-**ya**-qumb-a.
1A-Sipho SP_1-DJ-be(come)_constipated-FV
'Sipho gets constipated.'
(not: 'Sipho is still becoming constipated [right now].')

c. U-Sipho u-**sa**-qumb-a.
1A-Sipho SP_1-PERS-be(come)_constipated-FV
'Sipho still gets constipated.'
(not: 'Sipho is still becoming constipated [right now].')

These readings are also reinforced by their behaviour with the alterative prefix *se-* (representing a specific type of the phasal polarity concept ALREADY), which emphasizes contrast with a previous state-of-affairs. As the (a,b) pairs in examples (53–55) below show, the coming-to-be reading, or lack thereof, is the same when the *sa-* prefix is added. As seen in (53), *hlangana* 'come together, meet' readily allows both coming-to-be and habitual readings. (54) shows that *hlakanipha* 'be(come) clever' seems to prefer a coming-to-be reading as its default (although a habitual reading might be possible in particular contexts). Finally, *lamba* 'be(come) hungry, starve'

(55) generally disprefers a coming-to-be reading (‘is getting hungry’) with both forms, suggesting that a coming-to-be phase with this verb is marginally available, at best.

(53) Southern Ndebele

a. Abantu ba-ya-hlangan-a.
2.people SP_2-DJ-come_together-FV
‘(The) people meet.’
‘(The) people are coming together.’

b. Abantu se-ba-ya-hlangan-a.
2.people ALT-SP_2-DJ-come_together-FV
‘Now (the) people meet.’ (regularly)
‘Now (the) people are coming together.’ (in the process of assembling)

(54) Southern Ndebele

a. U-Sipho u-ya-hlakaniph-a.
1A-Sipho SP_1-DJ-be(come)_clever-FV
‘Sipho is growing clever/wise.’

b. U-Sipho se-ka-ya-hlakaniph-a
1A-Sipho ALT-SP_1-DJ-be(come)_clever-FV
‘Sipho is now becoming clever/wise.’

(55) Southern Ndebele

a. U-Sipho u-ya-lamb-a.
1A-Sipho SP_1-DJ-be(come)_hungry-FV
‘Sipho is poor.’ (lit: ‘Sipho gets hungry.’ [regularly])

b. U-Sipho se-ka-ya-lamb-a.
1A-Sipho ALT-SP_1-DJ-be(come)_hungry-FV
‘Sipho is now poor.’ (lit: ‘Sipho now gets hungry.’ [regularly])

Furthermore, as mentioned above, in Southern Ndebele, some, but not all, inchoative verbs in the perfective aspect can have both ‘for X time’ (resultant state) and ‘in X time’ (coming-to-be) readings with unmarked temporal measure adverbials (56). (See Section 5.3 for more on this test and its complicating factors.) Inchoative verbs that do not easily target coming-to-be phases with imperfective morphology only target the resultant state in the perfective aspect with temporal measure adverbials (56).

(56) Southern Ndebele

a. U-Jack w-**embethe** **imizuzu** **elitjhumi**.
1A-Jack SP_1-dress.PFV.CJ 4.minute 4.ten
‘Jack got dressed in ten minutes.’ (coming-to-be reading)
‘Jack was dressed for ten minutes.’ (resultant state reading)

b. Umratha u-phol-**e** **imizuzu** **elitjhumi**.
3.porridge SP_3-cool_down-PFV.CJ 4.minute 4.ten
'The porridge cooled down [to proper eating temperature] in ten minutes.' (coming-to-be reading)
'The porridge was cool for ten minutes.' (before something happened so the temperature became unacceptable again; resultant state reading)

(57) Southern Ndebele
U-Sipho u-lamb-**e** **imizuzu** **elishumi**
1A-Sipho SP_1-DJ-be(come)_hungry-PFV.CJ 4.minute 4.ten
'Sipho was hungry for ten minutes' (resultant state reading)

5.2. Challenges and complications in the investigation of inchoative verbs

5.2.1 Complicating factors in testing for a resultant phase. In Section 5.1, we described some evidence for the lexical encoding of a resultant state with inchoative verbs: ongoing-state readings of inchoative verbs with persistive *sa-* and with the 'all the time' marker *soloko*, and the possibility of reference to the length of the resultant state with temporal measure adverbials. These tests are subject to an important restriction: they only work when the resultant state is non-permanent; that is, they are restricted to states where change out of the state is possible or expected (see also Crane & Fleisch 2019). We illustrate this restriction with the persistive-plus-perfective construction in (58–60). In the case of persistive *sa-*, this restriction is likely related to its phasal polarity semantics, which require that a future change be expected, or at least possible (cf. Michaelis 1993, van der Auwera 1998, van Baar 1997: ch. 2, among others). Examples of verbs that are infelicitous with this construction are given in (58–60) below. (61, 62) show that *fa* 'die', though generally infelicitous with the persistive-plus-perfective frame when used with its primary meaning and living subjects, can be used in this frame in more idiomatic contexts in which the resultant state is not necessarily permanent, such as sleeping (61) or the metaphorical temporary "death" of a phone battery in (62). The reversibility criterion, while not always discussed in literature on actionality, has cross-linguistic salience, as described regarding (mostly) English in Croft (2012) and for the Bantu language Nyamwezi in Kanijo (2019, forthc.).

(58) #Umntwana u-sa-khul-ile
1.child SP_1-PERS-grow-PFV.DJ
Intended: 'The child is still grown up.'

(59) Southern Ndebele
#U-Sipho u-sa-luphele.
1A-Sipho SP_1-PERS-age.PFV.DJ
Intended: 'Sipho is still old.'

(60) #I-nja i-sa-f-ile
9.dog SP_9-PERS-die-PFV.DJ
Intended: 'The dog is still dead.'

Cf.

(61) Southern Ndebele

U-Ashley	**u-sa-f-ile**	**ngobuthongo**.
1A-Ashley	SP_1-PERS-die-PFV.DJ	INSTR.14.sleep

'Ashley is still sleeping.'

(62) Xhosa

Ibhetri	yeselula	yam	**i-sa-f-ile**.
9.battery	9.ASSOC.9.cell phone	$9.POSS_{1SG}$	SP_9-PERS-die-PFV.DJ

'My cell phone's battery is still dead.' (i.e. out of energy)

The reversibility restriction makes it harder to test directly, using multiple frames, for a lexicalized resultant state with non-reversible inchoative verbs such as those in (58–62). However, multiple tests establish the class of inchoative verbs, and the default ongoing-state interpretations of non-reversible inchoative verbs with perfective aspect seem to place such verbs squarely within the inchoative class, despite the difficulty of applying additional tests.

*5.2.2 Complicating factors in testing for a coming-to-be phase***.** Although the unfolding of events in the real-world certainly plays a role in determining which inchoative verbs also have coming-to-be readings, this distinction is not purely based on extralinguistic facts: as shown by Crane & Fleisch (2019), even cognate forms in closely related languages may have different actional profiles (see also Botne 2003 for a survey of cross-linguistic differences in the aspectual profile of verbs referring to the transition between life and death). However, some extralinguistic features of eventualities do seem to be significant in speakers' interpretations of coming-to-be readings.

For example, in considering the availability of coming-to-be readings, speakers appear to place special importance on the perceptibility of the ongoing change (rather than, for example, an inferred change), with visual perceptibility being especially salient. The importance of visual information is illustrated in (63–66). Speaker comments are paraphrased below the free translations, showing how speakers described their reactions to the examples and how they imagined scenarios in which the utterances might be felicitous. Examples (63, 64) show change-in-progress readings with the imperfective, while (65, 66) illustrate additional constructions intended to highlight the process of change. As seen in (65), speakers may differ in the extent to which they allow coming-to-be readings with certain verbs. In any case, visual evidence of a change is frequently key (as seen in the first speaker's explanation of ex. 65), although speakers allow other kinds of evidence; with first-person subjects (63b), they allow internal perceptual evidence as well. The below examples were gathered in elicitation, which may have influenced speaker judgments and, in particular, the emphasis on visual perception; corpus work will surely shed further light on this and other relevant patterns regarding this construction.

(63) Southern Ndebele

a. U-Sipho u-ya-hlunam-a.
1A-Sipho SP_1-DJ-be(come)_sad-FV
'Sipho is becoming sad.'
Speaker comment: "You can see his face changing."

b. Ngi-ya-hlunam-a.
SP$_{1SG}$-DJ-be(come)_sad-FV
'I am getting sad.'
Speaker comment: "I am not yet totally sad, but I can feel I am on my way."

(64) Southern Ndebele
Iblomu li-ya-hlum-a.
5.flower SP$_5$-DJ-bud-FV
'The flower is budding.'
Speaker comment: "You can see it."

(65) Southern Ndebele
?Na-si-fik-a=ko si-m-thol-e **a-dan-a**.
SIT-SP$_{1PL}$-arrive-FV=REL SP$_{1PL}$-OP$_1$-find-PFV.CJ SP$_1$.SUBORD-be(come)_disappointed-FV
Intended: 'When we arrived, we found him becoming sad/disappointed.'
Speaker A: "It's not something you can really see happening. Maybe under certain circumstances: you find two people sitting at the table just as you come in and you realize that this one is becoming sad. Maybe they were talking about something that makes one of them sad."
Speaker B: "When we arrived, we found him trying to fix something. He can't and he suddenly became disappointed. In most cases, we wouldn't use this. It feels good to say it but we wouldn't use it much."

(66) ??U-Sipho w-ethuk-e ngemizuzu elitjhumi
1A-Sipho SP$_1$-be(come)_frightened-PFV.CJ LOC.4.minute 4.ten
Intended: 'Sipho got frightened in ten minutes.'
Speaker comment: "The sentence is well constructed, but the meaning is not right. It sounds so scientific, outside of a lab where you're counting how fast Sipho can get frightened as compared to Jane."

A further, related factor in coming-to-be interpretations may be the ability to predict or define the outcome of a process, as shown in the contrast between (67a), which is marginally possible, and (67b), which, at least in Southern Ndebele, appears to be infelicitous.

(67) Southern Ndebele
a. ?U-Sipho u-ya-dum-a.
1A-Sipho SP$_1$-DJ-be(come)_famous-FV
'Sipho is becoming famous.'
Speaker comment: "You only get the sense of becoming famous after some time."
b. #U-Sipho u-sa-dum-a.
1A-Sipho SP$_1$-PERS-be(come)_famous-FV
Intended: 'Sipho is still getting famous.' (e.g. he is on his way to real fame, but not there yet, or he is growing more and more famous)

Similarly, the inherent subjectivity of the point of change may also influence the interpretive possibilities of the present persistive aspect, as appears to be the case in (68).

(68) Ikomo i-sa-non-a. (nbl)
9.cow SP9-PERS-be(come)_fat-FV
'The cow still gets fat.' (e.g. every year)
'The cow can still get fat.'
(not: 'The cow is still getting fat.' [but has not yet reached the point at which it could be called fat])[21]

5.3. Inchoative verbs and temporal adverbials. In this section, we describe in more detail the interactions of temporal adverbials and inchoative verbs. We have shown above that bare temporal measure adverbials can target the resultant phase of non-reversible inchoative verbs, and that they can target both the resultant phase and the coming-to-be phase of some two-phase verbs. While this duality is good evidence that the class of two-phase verbs exists in Nguni, temporal measure adverbials do not reliably predict the absence of a coming-to-be phase. Another issue of note is that coming-to-be phases, when encoded, do not seem to be separable from the point of culmination. In addition, Southern Ndebele (though not Xhosa) additionally has a direct expression for 'in X time', which measures the time before a change regardless of whether a coming-to-be phase is lexically encoded. With some inchoative verbs, bare temporal adverbials refer to the duration of the resultant state, but not of the coming-to-be phase (69).

(69) Southern Ndebele

a. Ba-hlang**ene** **amairi** **amabili**.
SP2-come_together.PFV.CJ 6.hour 6.two
'They met for two hours.'

b. U-Sipho u-hlakaniph-**e** **iminyaka** **emibili**.
1A-Sipho SP1-be(come)_clever-PFV.CJ 4.year 4.two
'Sipho was clever for two years.'

c. U-Sipho u-thul-**e** **imizuzu** **elitjhumi**.
1A-Sipho SP1-keep_quiet-PFV.CJ 4.minute 4-ten
'Sipho was quiet for ten minutes.'

d. U-Sipho u-khamb-**e** **iimveke** **ezimbili**.
1A-Sipho SP1-leave-PFV.CJ 10.week 10.two
'Sipho was away for two weeks.'

With other verbs, however, bare duration adverbials can reference either the duration of the resultant state *or* the duration of the coming-to-be phase, as in (70) (see ex. 39–41 above for more examples).

[21] A near translational equivalent in Xhosa is *tyeba* 'be(come) fat'. *Ndisatyeba*, similarly, cannot mean 'I am still getting fat', but an iterative-like reading 'I am getting fatter', suggesting a series of becoming-fat events. As shown in (72), interpretations of Southern Ndebele *nona* 'get fat' also allow for additional complexities (e.g. *isanona* can mean 'it can still get fat', in contrast to other cows that will not become fat(ter) regardless of the feeding programme). In any case, with both Xhosa *tyeba* and Southern Ndebele *nona*, the simple coming-to-be reading is not available.

(70) Southern Ndebele

Umratha	u-phol-**e**	**imizuzu**	**elitjhumi**.
3.porridge	SP_3-cool_down-PFV.CJ	4.minute	4.ten

i.'The porridge cooled down [to proper eating temperature] in ten minutes.' (coming-to-be reading)
ii. 'The porridge was cool for ten minutes.' (before something happened so the temperature became unacceptable again; resultant state reading)

The distinction between verbs in (69) and verbs like *phola* 'cool down' in (70) cannot be explained in terms of the presence vs. absence of a lexically encoded coming-to-be phase: *hlangana* 'come together', *hlakanipha* 'be(come) clever', and *phola* 'cool down' all seem to lexically encode coming-to-be phases (see Section 5.1). As shown in (70), availability of a coming-to-be reading with bare temporal measure adverbials is not necessarily related to subject agency or volition, properties known to affect the outcomes of tests for actional classes (see Walková 2012). Rather, it may be that the availability of this reading depends on the inherentness of the phasal boundary itself (as well as that marking the beginning of the coming-to-be phase), making the coming-to-be phase measurable in time. This hypothesis requires further testing.

Another issue that surfaces with temporal measure adverbials is that the coming-to-be phase is not inherently separable from the point of change, even in two-phase verbs. If verbs otherwise show evidence of lexically encoded coming-to-be phases, temporal container adverbials such as (nbl) *(k)izolo* 'yesterday' cannot target merely the (subjective or inherent) point of change, but must also contain the entire process leading up to the change. (72) shows that shorter coming-to-be phases are compatible with *(k)izolo* as a container adverbial: the change must fit within the timeframe mentioned.

(71)

#**Izolo**	ikomo	i-non-**ile**.	(nbl)
yesterday	9.cow	SP_9-be(come)_fat-PFV.DJ	

Intended: 'Yesterday, the cow became fat.' (i.e. it passed the subjective point where it could be called fat')

(72)

Izolo	abantu	ba-hlang**ene**	(nbl)
yesterday	2.person	SP_2-come_together.PFV.DJ	

'Yesterday, people came together.'

Similarly, verbs like *fa* 'die' disallow separability when both the coming-to-be phase and the change itself are explicitly invoked, as shown in (73).

73) a.

Inja	i-ya-f-a.
9.dog	SP_9-DJ-die-FV

'The dog is dying.'

b. Southern Ndebele

#Inja	be-yi-f-a	amazuba	amabili,	y-a-f-a
9-dog	PST-SP_9-die-FV	6.day	6.two	SP_9-CONS-die-FV

namhlanje	ng-e-simbi	yetjhumi	na=mbili.
today	LOC-9-bell	9.ASSOC.ten	COM=two

Intended: '?The dog was dying for two days, and it died today at noon.'

Finally, Southern Ndebele, but not Xhosa, allows for both bare temporal measure adverbials and for *nga*-prefixed temporal adverbials. In general, bare temporal measure adverbials have a vague 'in/for X time' reading (for discussion of similar phenomena in other languages, see Wilhelm 2003: 73 on the Athabaskan language Chipewyan; Bar-el 2005: 45 on the Salishan language Squamish). In contrast, *nga*-prefixed adverbials in Southern Ndebele force an 'in X time' reading (74). With two-phase verbs (74a,b), *nga*- adverbials reference only the time before the change, and not the resultant state. Some constructions with *nga*- adverbials are judged as a bit odd (74b), since it is difficult to measure the time before a change and/or to determine the point of change. *Nga*-marked adverbials can co-occur with most kinds of verbs, including verbs that do not encode a coming-to-be phase; with such verbs, they target the time that elapsed before culmination (as in English *she arrived in* [=after] *an hour*) (74c,d).

(74) Southern Ndebele

a. Ba-hlang**ene** **ngamairi** amabili.
SP$_2$-come_together.PFV.CJ LOC.6.hour 6.two
'They took two hours to come together.'

b. ?U-Sipho u-hlakaniph-**e** **ngeminyaka** **emibili**.
1A-Sipho SP$_1$-be(come)_clever-PFV.CJ LOC.4.year 4.two
'Sipho became clever in two years.'

c. U-Sipho u-thul-**e** **ngemizuzu** **elitjhumi** .
1A-Sipho SP$_1$-keep_quiet-PFV.CJ LOC.4.minute 4.ten
'Sipho quieted down in ten minutes.'

d. U-Sipho u-khamb-**e** **ngemizuzu** **elitjhumi.**
1A-Sipho SP$_1$-leave-PFV.CJ LOC.4.minute 4.ten
'Sipho left in ten minutes.' (it took him ten minutes to go)

Thus, behaviour with *nga*-marked temporal adverbials is not diagnostic of a coming-to-be phase.

5.4 Past-change readings of inchoative verbs. As shown in the previous sections, in certain contexts, perfective *-ile*/*-e* forms can have state-change readings (e.g. 'got angry') in addition to present-state readings (e.g. 'is angry'). However, such readings are (generally speaking) marginal at best with *-ile*/*-e* perfective forms in Xhosa, and, as detailed in Crane & Fanego (2020), other forms are frequently preferred in Southern Ndebele, as well, especially to describe rapid or instantaneous changes. In Southern Ndebele, at least, there seems to be a cline of acceptability of past state-change readings with *-ile*/*-e* perfective forms. Two-phase verbs with clearly bounded, temporally extended coming-to-be phases (for example, *hlubula* 'undress') allow state-change readings rather easily in multiple contexts. Some examples of past-change readings are given with the two-phase verbs *nona* 'be(come) fat' and *hlangana* 'come together, meet' in (75). Other

inchoative verbs allow for past-change readings only in more specific contexts, which may vary depending on the verb. On the other end of the spectrum, inchoative verbs without coming-to-be phases (such as *lamba* 'be(come) hungry' for most speakers) do not seem to allow past state-change readings with perfective *-ile*/*-e*, at all, as shown in (76). Other inchoative verbs, such as *phatha* 'hold, carry', behave similarly. The lack of a past-change reading holds even in contexts that otherwise force such readings (76c–e). The clear rejection of these readings by speakers who do allow state-change readings with many two-phase verbs is striking. To express the state-change reading with inchoative verbs without coming-to-be phases, other frames, such as the consecutive (76f), [22] must be used.

(75) Southern Ndebele

a. Ikomo i-ya-non-a.
9.cow SP$_9$-DJ-be(come)_fat-FV
'The cow is getting fat.'

b. Ikomo i-non-**e** **unyaka** **o-phel-ile-ko**
9.cow SP$_9$-be(come)_fat-PFV.CJ 3.year REL$_3$-finish-PFV.DJ-REL.DJ
'The cow got fat last year.'

c. Na-si-fik-a-ko, ba-hlang**ene**
SIT-SP$_{1PL}$-arrive-FV-REL SP$_2$-come_together.PFV.DJ
When we arrived, they came together.'

(76) Southern Ndebele

a. U-Sipho u-ya-lamb-a.
1A-Sipho SP$_1$-DJ-be(come)_hungry-FV
'Sipho is poor.'
(in general, not: 'Sipho is getting hungry', although one of our consultants allows, but does not prefer, this reading)

b. U-Sipho u-lamb-ile.
1A-Sipho SP$_1$-be(come)_hungry -PFV.DJ
'Sipho is hungry.'

c. #**Kizolo** u-Sipho u-lamb-**ile**.
yesterday 1A-Sipho SP$_1$-be(come)_hungry-PFV.DJ
Intended: 'Yesterday, Sipho got hungry.'

d. #U-Sipho u-lamb-**e** **kizolo**.
1A-Sipho SP$_1$-be(come)_hungry-PFV.CJ yesterday
Intended: 'Sipho got hungry yesterday.'

[22] As Creissels et al. (2008: 107) observe, "Niger-Congo languages often have special 'consecutive' or 'sequential' verb forms that characterize non-initial clauses in sequences of clauses reflecting a chronological presentation of event"; for an additional, Bantu-specific discussion, see Nurse (2008: 120–123).

e. #**Na-si-fik-a-ko**, u-Sipho u-lamb-**ile**.
SIT-SP1$_{PL}$-arrive-FV-REL 1A-Sipho SP$_1$-be(come)_hungry-PFV.DJ
Intended: 'When we arrived, Sipho got hungry.'

f. **Na-si-fik-a-ko**, u-Sipho w-**a**-lamb-a.
SIT-SP$_{1PL}$-arrive-FV-REL 1A-Sipho SP$_1$-CONS-be(come)_hungry-FV
'When we arrived, Sipho got hungry.'

5.5. Participant-structure changing verbal suffixes. This section discusses three verbal suffixes (also known as "extensions") – neuter, causative, and passive – that have interesting interactions with aspectual interpretations in Southern Ndebele and Xhosa. Another productive suffix, the argument-adding applicative extension, has not yet been investigated in depth in terms of actionality in these languages, but we expect that detailed study will turn up patterns: Sibanda (2016), while not focusing on actionality, shows that the applicative suffix in Zimbabwean Ndebele is useful in the general semantic classification of verbs. We have not investigated the role of these suffixes systematically with a large number of verbs; therefore, the discussion in this section is meant to stimulate further research on the roles of such suffixes in the actional systems of Nguni and other Bantu languages.

Neuter. Broadly speaking, the neuter in Bantu "is a verbal suffix which derives a one-participant clause from a basic, underived two-participant clause" (Dom 2014: 1). In Nguni, this extension has the form *-ek*. For example, Southern Ndebele *sula* 'wipe out, erase' becomes *sul-ek-a* 'be wiped clean, be sleek' with the neuter extension. Many neuter verbs do not encode a coming-to-be phase, but instead have readings associated with modal possibility when used with imperfective forms. Thus (77b) and (78) signal that the subject has the potential to undergo change. Such modal functions of the *-ek* extension are not uncommon across Bantu (Dom 2015). (Furthermore, readings of modal possibility with disjoint imperfective *ya-* are seen with other, non-neuter verbs; see, e.g., example 5b, which has as a possible reading 'I *can* eat mango'.)

(77) Southern Ndebele
a. U-Sipho u-sul-a phasi.
1A-Sipho SP$_1$-wipe-FV down
'Sipho is wiping the floor.'

b. Phas=apha ku-ya-sul-**ek**-a.
down=DEM.LOC SP$_{17}$-DJ-wipe-NEUT-FV
'The floor is wipeable.'

(78) Umukhwa u-ya-lol-**ek**-a. (nbl)
3.knife SP$_3$-DJ-sharpen-NEUT-FV
'The knife can be sharpened.'

When used with the perfective, verbs such as *suleka* have readings of an actual (as opposed to potential) state, as shown in (79).

(79) Southern Ndebele

a. Phas=apha ku-sul-**ek**-**ile**.
down=DEM.LOC SP_{17}-wipe-NEUT-PFV.DJ
'The floor is (nicely) wiped.'

b. Phas=apha ku-**sa**-sul-**ek**-**ile**.
down=DEM.LOC SP_{17}-PERS-wipe-NEUT-PFV.DJ
'The floor is still clean.' (lit: 'is still wiped')

However, at least some verbs with the neuter extension do allow coming-to-be readings with the imperfective, as in the following examples from Xhosa.

(80) Xhosa

a. Ifriji yam i-ya-coc-**ek**-a.
9.fridge $9.POSS_{1SG}$ SP_9-DJ-clean-NEUT-FV
i. 'My fridge is becoming clean.'
ii. 'My fridge is cleanable.'

b. Intlanzi i-ya-qhots-**ek**-a.
9.fish SP_9-DJ-fry-NEUT-FV
'The fish is getting fried.' (Andrason & Dlali 2017: 403)

c. Isigulane si-ya-bulal-**ek**-a **ziintlungu**
7.patient SP_7-DJ-kill-NEUT-FV $SP_{10}.COP_{10}$.pain
'The patient is being (getting) killed by the pain.' (Andrason & Dlali 2017: 403)

Since there are no obvious processual differences between the changes described by the verbs in (77, 78) and those in (80), further investigation of such patterns with neuter-marked verbs and their relative prevalence is merited.

Passive and causative. In contrast to the neuter *-ek* suffix, which de-emphasizes the agent and, possibly, therefore also the process, the passive *-w* suffix frequently indicates that a patientive subject is being acted upon by an external agent. Perhaps as a result, many passive verbs have the resultant state readings with the perfective and coming-to-be readings with the imperfective associated with two-phase verbs.

Perhaps tellingly, passive verbs formed from causative verbs denoting processes seem to most frequently have extended coming-to-be readings with imperfective forms, as seen in the examples in (81) with the verb *rhunyela* 'shrink' (intr.). *Rhunyela* has a characteristic reading (81a) with the imperfective; its causativized form *rhunyeza* 'shrink (tr.) additionally has a coming-to-be reading (81b); both readings are also available with the passivized causative form *rhunezwa* 'get shrunk' (81c).

(81) Southern Ndebele

a. Irhembe i-ya-rhunyel-a.
9.shirt SP_9-DJ-shrink-FV
'The shirt shrinks.' (characteristic)

b. Idrayara i-**rhunyez**-a irhembe.
9.dryer SP9-shrink.CAUS-FV 9.shirt
'The dryer is shrinking the shirt.' (right now)
'The dryer shrinks the shirt.' (every time)

c. Irhembe i-ya-**rhunyez**-**w**-a.
9.shirt SP9-DJ-shrink.CAUS-PASS-FV
'The shirt is being shrunk.' (right now)
'The shirt gets shrunk.' (in general)

However, at least one verb with passive morphology in Southern Ndebele – *dakwa* 'get drunk' – disallows coming-to-be readings (82b,c), suggesting that it does not have a lexical coming-to-be phase, and that the trend towards passive inchoative verbs encoding both phases is not absolute.

(82) Southern Ndebele

a. U-Sipho u-dak-**iwe**
1A-Sipho SP1-intoxicate-PASS.PFV.DJ
'Sipho is drunk.'

b. U-Sipho u-**ya**-dak-**w**-a.
1A-Sipho SP1-PERS-intoxicate-PASS-FV
'Sipho is a drunkard / crazy.'
(not: 'Sipho is getting drunk.')

c. U-Sipho u-**sa**-dak-**w**-a.
1A-Sipho SP1-PERS-intoxicate-PASS-FV
'Sipho still gets drunk.'
(not: 'Sipho is still getting drunk')

In contrast to the examples in (81), *dakwa* 'get drunk' describes the gradual result of a process (drinking) that typically involves at least some agentivity on the part of the subject, although its morphological expression is that of a passive. Perhaps, then, the use of passive morphology on an activity that in the real world involves agency functions similarly to the use of the neuter morpheme (deemphasising the agent and perhaps also the process), in contrast to examples such as (81), where the explicit invocation of a causer adds a sense of process. This explanation is, of course, speculative, and further verbs like *dakwa* would need to be found to confirm the generality of the trend.

Sometimes, causativized verbs can also be used with resultant state readings in the persistive-plus-perfective- frame. In such cases, two things are worthy of note: First, the "resultant" state relates to the subject, as in (83b), which is often described as being in an "interim" state – occupied by waiting for something. Second, passivized versions of these forms also tend to have interim-state readings (83c), in contrast to the simple form (83d), which relates to a more terminal (though not necessarily a permanent) state.

(83) Southern Ndebele

a. U-Sipho u-**s**-om-**is**-a irhembe.
1A-Sipho SP_1-PERS-be(come)_dry-CAUS-FV 9.shirt
'Sipho is still [actively] drying a/the shirt.' (e.g. waving it in the wind)

b. U-Sipho u-**s**-om-**is**-**e** irhembe.
1A-Sipho SP_1-PERS-be(come)_dry-CAUS-PFV.CJ 9.shirt
'Sipho is still [passively] drying a/the shirt.' (e.g. he hung it up, now he is in a state of waiting for it to dry)

c. Irhembe i-**s**-om-**is**-**iwe**.
9.shirt SP_9-PERS-be(come)_dry-CAUS-PASS.PFV.DJ
'The shirt is still [in a state of] being dried.' (it is not dry yet)

d. Irhembe i-**s**-om-**ile**
9.shirt SP_9-PERS-be(come)_dry-PFV.DJ
'The shirt is still dry.' (Crane & Persohn 2019b: 329)

Further examples of accomplishment-like verbs being interpreted as having subject-relevant resultant states, as in (83b,c) above, are given in Section 7.2. The patterns shown with causative and passive suffixes in this section appear to be fairly robust and show that further research is merited on the roles of valency-changing suffixes in aspectual interpretations, and, possibly, in shifting actional classes.

6. Non-inchoative verbs

In this section, we will delve into several relating to non-inchoative verbs. Although inchoative verbs are prominent in their interactions with grammatical aspect, which deviate from more typologically common patterns (Polančec 2020, forthc.), it is likely that non-inchoative verbs are numerically the larger class.

In studies of Bantu actionality, non-inchoative verbs are sometimes said to encompass Vendlerian activities, accomplishments, and states, and possibly semelfactives and non-inchoative achievements (e.g. Crane 2011: 34). In this section, we raise questions about the suitability of these Vendlerian classes in categorizing non-inchoative verbs in Xhosa and Southern Ndebele.

First, in Section 6.1, we briefly review some characteristics of the relatively small class of non-inchoative states (already presented in Section 4), which behave somewhat like Vendlerian states, but can also make reference to the left boundary in perfective contexts.

Then, in Section 6.2, we give a few notes on what seems to be a minor class in Xhosa and Southern Ndebele: change-of-state verbs that are not inchoative, that is, those that encode a change on the part of the subject but do not encode a resultant state. Such verbs are referred to as achievements in the Vendlerian system. We did not uncover many such verbs in our investigations. Persohn (2017) also posits that this class is very small in Nyamwezi, and Crane & Persohn (2019a) discuss the inconsistent theoretical treatment of such verbs across Bantu. While our observations about such verbs in Nguni are still tentative, the apparent small size of this class underscores the relative importance of inchoativity, rather than other actional characteristics such as telicity or extension in time.

In Section 6.3, we engage more directly with the question of telicity and the grammatical importance of the activity/accomplishment divide. We cannot make any claims about the psychological salience of this distinction, but we will suggest that in that in terms of grammar–lexicon interactions, the ramifications of telicity might be less essential than the inchoative–non-inchoative distinction. In addition to the general challenges in testing for telicity and the availability of non-culminating accomplishment readings, we will discuss cases in which verbs that in most ways pattern as non-inchoative can be coerced to have inchoative-like (ongoing state) readings with the perfective in special, subject relevant contexts.

6.1. Non-inchoative states. In introducing the inchoative–non-inchoative distinction, Section 4 also delineated a class of non-inchoative state verbs in Southern Ndebele and Xhosa. Although they pattern like non-inchoative active verbs in many grammatical frames, with ongoing-state readings only in imperfective frames (84a), they differ from them in the importance of their left boundary: perfective frames allow, and often privilege, state-change readings (84b,c). (Past imperfective forms, as in ex. 84d, are more commonly used for past-state readings.)

(84) Southern Ndebele

a. U-Sipho u-**ya**-gul-a.
1A-Sipho SP_1-DJ-be_ill-FV
'Sipho is sick.'
(also possible in some contexts: 'Sipho gets sick.' [frequently])

b. U-Sipho u-gul-**ile** (izolo).
1A-Sipho SP_1-be_ill-PFV.DJ (yesterday)
'Sipho got sick / was sick (yesterday).'

c. Ngi-gul-**e** **iimveke** **ezimbili**.
SP_{1SG}-be_ill-PFV.CJ 10.week 10.two
'I got sick for two weeks.'

d. U-Sipho **be**-ka-gul-a.
1A-Sipho PST-SP_1-be_ill-FV
'Sipho was sick.'

As such, non-inchoative state verbs are somewhat reminiscent of left-delineated states in (non-Bantu) languages with more canonical perfective–imperfective systems (see Polančec 2020, forthc.): in such languages, left-delineated states express the transition with perfective aspect and the ongoing state with imperfective aspect. Note that Polančec (2020: 316) calls such verbs "inchoative states" and groups them together with Bantu inchoative verbs. Southern Ndebele and Nguni non-inchoative states seem to straddle the line between cross-linguistically more common left-delimited states, with state-change readings in the perfective ('got sick'), and unbounded states, some of which have delimitive readings ('was sick') with perfective aspect (Polančec 2020: 314–316; note that Polančec uses the terms "ingressive states" and "total states").

Non-inchoative state verbs seem to be a smaller class than inchoative verbs in the languages discussed here, as well as in many other Bantu languages (see Crane & Persohn 2019a for discussion). Some non-inchoative state verbs in Southern Ndebele include *qanda* 'be cold', *baba*

'be sour, bitter, spicy', *bothozela* 'be soft', *gula* 'be sick', and the morphologically defective verb *azi* 'know'. Southern Ndebele and Xhosa also exhibit pairs of two lexical verbs expressing very similar stative concepts, in which one is inchoative, and the other is a non-inchoative state, for example Southern Ndebele inchoative (*e*)*thuka* 'be(come) afraid' and non-inchoative state *saba* 'be afraid'. Other verbs seem to function as both non-inchoative and inchoative states, sometimes with slightly different meanings, as detailed in Crane (ms.). One such example is Southern Ndebele *hlala* 'sit (down), stay'. With the meaning 'sit down, be seated', *hlala* behaves like an inchoative verb and is generally used with the irregular perfective form *hlezi* (85). When used with the meaning 'stay (live)', *hlala* behaves more like a non-inchoative state, with an ongoing-state reading in imperfective frames (86) and a past reading in (regular) perfective frames *hlale*/*hlalile*.[23]

(85) Southern Ndebele
U-Sipho u-**hlezi** **phasi**.
1A-Sipho SP_1-sit_down/stay.PFV.CJ down
'Sipho is seated.'

(86) U-Sipho u-**hlal**-a **e-Pitori**.
1A-Sipho SP_1-sit_down/stay-FV LOC-Pretoria
'Sipho lives in Pretoria.'

These dual-nature states may have developed from conventionalized readings of habitual state-changes, as with *lamba* 'be(come) hungry', which means 'be hungry' in perfective frames but 'be poor' in imperfective frames (as described in Section 5.4 and elsewhere).

6.2. Non-inchoative change-of-state verbs: a minor class? One group of verbs that have change-of-state-like meanings, in that they denote "a change of condition or location of the experiencer…" (Botne & Kershner 2000: 165), also has primarily past readings with the perfective; that is, these verbs do not seem to lexically encode a resultant state (87, 88).

(87) U-Sipho u-fik-ile.
1A-Sipho SP_1-arrive-PFV.DJ
'Sipho (has) arrived.'

(88) U-Sipho u-buy-ile.
1A-Sipho SP_1-return-PFV.DJ
'Sipho came back/Sipho has come back.'

The relative importance of this class in Nguni actionality is not yet clear, but it appears to be a rather small class. In our data, these verbs mostly describe changes of location, although some other verbs describing change of location *are* inchoative; that is, they do have present readings with perfective aspect.

Some of these verbs resemble Vendlerian achievements, marking only the point of transition or culmination: although a process leading up to that culmination may be part of the real-world event, it does not appear to be lexically encoded. With such verbs, the persistive *sa*- form can

[23] This description somewhat oversimplifies the many uses of *hlala* in its different forms and should be understood more as a generalization than a categorical statement.

(at least sometimes) have special readings in which the moment of culmination itself can be construed as a temporally extended process, as in (89a). Unlike verbs with extended coming-to-be phases, verbs like *fika* appear to be able to target *either* side of the point of culmination with the imperfective (about to arrive, just arrived). With persistive *sa-* in imperfective forms (89b), *fika* describes a state-of-affairs in which the subject has already arrived in a physical sense but has not yet fully settled in. Imperfective forms of these verbs do not reference temporally extended preparatory phases. Perfective forms only have past readings (89c) and are infelicitous with persistive *sa-* (89d), indicating that the resultant state is not lexically encoded, in contrast to inchoative verbs.

(89) Southern Ndebele

a. U-Sipho u-**ya**-fik-a.
1A-Sipho SP_1-DJ-arrive-FV
'Sipho is arriving.' (just about to arrive; just arrived now)
(not: 'Sipho is on his way.')

b. U-Sipho u-**sa**-fik-a.
1A-Sipho SP_1-PERS-arrive-FV
'Sipho just arrived.'
(e.g. "He just arrived, and you're already giving him too many chores to do; he needs time to finish the arrival 'process' and settle down")
(not: 'Sipho is still on his way.')

c. U-Sipho u-fik-**ile**.
1A-Sipho SP_1-arrive-PFV.DJ
'Sipho (has) arrived.'

d. #U-Sipho u-**sa**-fik-**ile**.
1A-Sipho SP_2-arrive-PFV.DJ
Intended: 'Sipho has arrived [and is still here].'

Change-of-state verbs which, under our analysis, encode neither temporally extended coming-to-be phases nor resultant phases, were judged at least by Southern Ndebele speakers as infelicitous with temporal measure phrases, as illustrated with *fika* 'arrive' in (90).

(90) #U-Sipho u-fik-**e** **i-iri** **loke** (nbl)
1A-Sipho SP_1-arrive-PFV.CJ 5-minute 5.one
Intended: 'Sipho arrived in/for an hour.'[24]

6.3. The activity/accomplishment distinction. In previous sections, we have argued for the salience of the inchoative–non-inchoative distinction in Nguni languages. We have not yet addressed an actional distinction that is generally considered to be cross-linguistically basic: the

[24] While Southern Ndebele speakers unambiguously rejected the example in (90), Xhosa speakers allowed for the corresponding example with the meaning 'arrived, and then stayed for an hour'. Further investigation is needed to understand the basis for and scope of this difference, since non-inchoative change-of-state verbs appear to be relatively rare overall.

distinction between (atelic) activity and (telic) accomplishment verbs. In this section, we will discuss evidence that the activity–accomplishment distinction may not be as grammatically significant in Nguni as the inchoative–non-inchoative distinction, and that the possibility of construing a subject-relevant resultant state may be significant for the grammar of even non-inchoative verbs.

6.3.1 Testing for telicity. Testing for telicity (defined here as having an inherent endpoint) traditionally builds upon tests introduced in Dowty (1979); see Binnick (1991: 173–197) for an overview. Specifically, tests that target the difference between activities and accomplishments in English have been characterized as follows, following Walková (2012: 501–502).[25]

(91) a. Occurs with *for an hour*:
acceptable with activities, somewhat marginal for accomplishments
(implicating non-culmination)

b. Occurs with *in an hour*:
infelicitous with activities, acceptable with accomplishments

c. *x is* V-*ing* entails *x has* V-*ed* (the so-called "imperfective paradox"):
true for activities, not true for accomplishments

d. Ambiguous with *almost* (i.e. *almost started* or *almost finished*):
false for activities; true for accomplishments

As discussed in Walková (2012), these tests are somewhat unreliable even in English, the language for which they were designed. We found their application to Nguni languages even more challenging (see also Crane & Fleisch 2019). We describe here how they played out in Southern Ndebele.

With regard to the tests in (91a,b), some trends were noted, especially when translations from the target languages into English were employed. As described in Section 5.3, bare temporal adverbials can be translated as either 'in X time' or 'for X time'. The most salient translation in unambiguously telic contexts (single, quantized object or measure) is 'in X time' (implicating culmination of a telic event); however, translations with 'for X time' (not implicating culmination) are also allowed, as shown in (92a). In Southern Ndebele, where a *nga* -marked temporal measure adverbial specifies 'in X time', such adverbials more strongly implicate event culmination (92b).

(92) Southern Ndebele

a.	U-Sipho	u-tlol-**e**	incwadi	**amalanga**	**amabili**.
	1A-Sipho	SP1-write-PFV.CJ	9.letter	6.day	6.two

'Sipho wrote a letter in/for two days.' (he may or may not have finished it)

[25] Another entailment test also relates to the contrast between activities and accomplishments: *V for an hour* entails *at all times in the hour* (Walková 2012: 502). We did not employ this test with a large number of verbs in Southern Ndebele or Xhosa.

b. U-Sipho u-tlol-**e** incwadi **ngamalanga** **amabili**.
1A-Sipho SP1-write-PFV.CJ 9.letter LOC.6.day 6.two
'Sipho wrote a letter in two days.' (implicates that he finished it)

As in English (e.g. Dowty 1979: 61), as long as a bounding object or goal can be construed, even "activity"-like verbs are felicitous with the *nga-* temporal adverbial forms (93). This phenomenon has been observed in other languages, as well (see Walková 2012: 509, Smith 1997: 28, 114; Binnick 1991: 176 speaks of a "quasi-accomplishment sense").

(93) Southern Ndebele
U-Sipho u-cul-**e** **ngemizuzu** **elitjhumi**.
1A-Sipho SP1-sing-PFV.CJ LOC.4.minute 4.ten
'Sipho sang in ten minutes.' (i.e. he finished that song or portion of the music in that time)

Such readings are much harder (although not necessarily impossible) to construe with predicates that are not typically intentional or bounded, as in (94).

(94) Southern Ndebele
?/#U-Sipho u-**khohlele** **ngemizuzu** **elitjhumi**.
1A-Sipho SP1-cough.PFV.CJ LOC.4.minute 4.ten
Intended: '?Sipho coughed in ten minutes.'

The "imperfective paradox" (Dowty 1977: 45) test in (91c) is even more difficult to meaningfully apply. For one thing, there is no dedicated present progressive construction in Southern Ndebele or Xhosa, so the test cannot be applied at all using untensed imperfective frames. (Untensed perfective forms have the further complication of also expressing present states with inchoative verbs.) When used with past imperfective morphology, the test behaves as expected with activity-like verbs: a past imperfective form (past *be-* and default final vowel *-a*) entails a perfective form, as in (95), even if the verb in question can be construed as bounded (cf. 93).[26]

(95) **be**-ka-cul-a ⊨ u-cul-**ile**
PST-SP1-sing-FV SP1-sing-PFV.DJ
's/he was singing' 's/he sang'

However, the test is more challenging to interpret with accomplishment-like predicates. Speakers generally agree with the default judgments of English speakers for the corresponding translations of examples like (96) – building a house does not necessarily entail having built a house.

[26] As noted in Crane & Fleisch (2019: fn3):
> We tried several methodologies for employing this test in isiNdebele. For example, we said (using English as a framing language), "I know that *Sipho bekacula*. In other words, *Sipho uculile*, right?" We also tested (without using English) the felicity of the IPFV BUT NOT PFV frame, as well as several other contexts; all proved rather difficult in elicitation, with different speakers responding more intuitively to different tests, but the results were nevertheless sometimes enlightening, when interpreted with caution.

(96) **be**-k-akh-a indlu ⊬ w-akh-**e** indlu
PST-SP$_1$-build-FV 9.house SP$_1$-build-PFV.CJ 9.house
's/he was building a house' 's/he built a house'

That said, the widespread availability of non-culminating accomplishment readings (discussed further below) complicates these judgments, as shown by speaker commentary on (97).

(97) **be**-ka-fund-a incwadi ?⊨ u-fund-**e** incwadi
PST-SP$_1$-read-FV 9.book SP$_1$-read-PFV.CJ 9.book
's/he was reading a book' 's/he read a book'
Speaker comments:
"don't know if s/he finished" "don't know if s/he finished"

Thus, it is perhaps problematic to speak of "entailment" with this test, or to know how much speaker judgments in a specific case relate to their own language intuitions or to interference from English, prototypical event construals (for example, the prototype of the event 'build a house' includes its culmination), and other factors.

Furthermore, the Southern Ndebele equivalent of 'almost', the auxiliary construction shown in (98), does not seem to reliably distinguish between bounded and unbounded predicates: both seem to allow only readings of 'almost started doing X', as in (98).

(98) Southern Ndebele

a. U-**pheze** w-**a**-tlol-a incwadi.
SP$_1$-almost SP$_1$.CONSEC-write-FV 9.letter
'S/he almost started writing a letter.'
(not: 'S/he almost finished writing a letter.')

b. U-**pheze** w-**a**-cul-a.
SP$_1$-almost SP$_1$-CONSEC-sing-FV
'S/he almost sang [started singing].'
(not: 'S/he almost finished singing the relevant portion of music.')

Certain predicates, however, do allow for the 'almost completed' reading with the *pheze* construction. For example, in example (99), in which the bounding element is not an affected object but a measure phrase, the meaning is ambiguous between 'almost started' and 'almost completed', as is reported for English accomplishments in general.

(99) Southern Ndebele
U-Angela u-**pheze** w-**a**-gijim-a ikhilomitha.
1A-Angela SP$_1$-almost SP$_1$-CONSEC-run-FV 5.kilometre
'Angela almost ran a kilometre.' (but she decided to do something else / but she ran only 0,9 km)

When pheze is used with other telic motion descriptions (cf. ex. 104 below), the same pattern (never started) applies as with the predicates in (99). This pattern is illustrated in (100).

(100) a. U-Angela u-**pheze** w-**a**-y-a e-Kapa.
1A-Angela SP1-almost SP1.CONSEC-go-FV LOC-Cape_Town
'Angela almost went to Cape Town.' (but she never left home;
cannot mean: 'she made it most of the way there')

cf.

b. U-Angela u-**pheze** w-**a**-fik-a e-Kapa.
1A-Angela SP1-almost SP1.CONSEC-arrive-FV LOC-Cape_Town
'Angela almost arrived in Cape Town.' (but she only made it, for example, as far as the nearby town of Paarl)

Thus, *pheze* 'almost' appears to distinguish between types of boundedness, rather than between activities and accomplishments.[27]

In summary, none of the tests in (91) can distinguish straightforwardly between accomplishment-like and activity-like predicates in Southern Ndebele (or, quite probably, in Xhosa), even if factors such as quantization and multiple-event readings are controlled for (cf. Walková 2012). Prototypically bounded and prototypically unbounded states-of-affairs do not appear to have significantly different interactions with markers of grammatical aspect. (Frequency counts in language corpora might yet reveal different usage patterns, however.)

Another phenomenon that might also be relevant to the activity/accomplishment distinction in Nguni is the availability of non-culminating accomplishment readings.

6.3.2 Non-culminating accomplishments. Non-culminating accomplishments are a cross-linguistic phenomenon in which predicates strongly implicate, but do not necessarily entail, culmination when paired with perfective aspect. They are attested in an array of genetically and geographically diverse languages, see Martin (2019). As already seen in (97) above, Southern Ndebele allows for non-culmination readings with the perfective aspect. Persohn (2021) discusses in detail the phenomenon of non-culminating accomplishments in Xhosa, first noted by Savić (2017). In the case of verbs of consumption, destruction and what Persohn terms "transitive change-of-state verbs" (e.g. 'paint'), culmination is defeasible even if only small event fragments have transpired, as shown in (101) for a verb of consumption.

(101) Xhosa (Persohn 2021)
Context: Yesterday I come home from work and lit up a cigarette. I took only one puff, then I put it out again.

[27] Note that the behaviour of change-of-state verbs following adverbial *pheze* 'almost' is also complex with inchoative verbs, but patterns rather differently. With many biphasal verbs, near-completion readings are allowed: for example, in Southern Ndebele, *phakama* 'rise up' has both near-starting and near completion readings. With other inchoative verbs, in contrast to the non-inchoative verbs discussed in this section, non-completion is the only allowable reading; this is the case with Southern Ndebele *nona* 'grow fat', *sutha* 'get drunk', and *vunda* 'spoil' (food). More investigation is needed to determine what accounts for the dual vs. near-completion readings; the examples mentioned here suggest that the availability of an 'almost started' reading is not entirely correlated with a sense of activity or agency on the part of the subject. In addition, not all inchoative verbs allow for near-completion readings, even if they otherwise show clear evidence of a coming-to-be phase: for example, *khula* 'grow (up)', at least when used in the sense of child growing up, is infelicitous with both 'almost started' and 'almost completed' readings.

✓ **Ndi-tshay-e** **isigarethi** kodwa a-nd-a-yi-gqib-a.
SP$_{1SG}$-smoke-PFV.CJ 9.cigarette but NEG-SP$_{1SG}$-CONSEC-OP$_9$-finish-FV
'I smoked a cigarette, but did not finish it.'

Verbs of creation and performance in Xhosa, on the other hand, impose stricter felicity conditions on the use of the perfective, namely that the object must be recognizable as an instance of the entity denoted by the object noun phrase. This restriction is illustrated in (102, 103).[28]

(102) Xhosa: Verb of creation (Persohn 2021)
Visual stimulus: a quarter of a circle.
Ndi-zobe **isangqa**, kodwa a-nd-a-si-gqib-a.
SP$_{1SG}$-draw-PFV.CJ 7.circle but NEG-SP$_{1SG}$-CONSEC-OP$_7$-finish-FV
'I drew a circle, but I did not finish it.'
… a semicircle …
Ndizobe isangqa, kodwa andasigqiba.
'I drew a circle, but I did not finish it.'
… three quarters of a circle…
✓ Ndizobe isangqa, kodwa andasigqiba.
'I drew a circle, but I did not finish it.'

(103) Xhosa: verb of performance (Persohn 2021)
a. Context: Yesterday we went to a concert. Towards the end of the concert the singer announced that she would sing a well-known sad song. She sang the first line of the song, but then electricity failed, and the concert was over.
Imvumi **i-cul-e** **ingoma** **elusizi**, kodwa
9.singer SP$_9$-sing-PFV.CJ 9.song 9.sad but
ak-a-yi-gqib-a.
NEG.SP$_1$-CONSEC-OP$_9$-finish-FV
'The singer sang the sad song, but did not finish it.'
Speaker comment: "One line is not yet a song."

b. … She sang about a quarter of the song …
✓ Imvumi icule ingoma elusizi, kodwa akayigqiba.
'The singer sang the sad song, but did not finish it.'

Unlike with the types of accomplishments illustrated in (102, 103), telic motion descriptions in Xhosa do not allow for culmination to be cancelled (104).

(104) Xhosa: telic motion description (Persohn 2021)
a. U-Bongani **u-y-e** **eKapa** #kodwa
1A-Bongani SP$_1$-go-PFV.CJ LOC.Cape_Town but
ak-a-fik-a phaya.
NEG.SP$_1$-CONSEC-arrive-FV DIST.LOC
'Bongani went to Cape Town #but did not arrive there.'

[28] A similar pattern has been observed in Hindi (hin) (Singh 1994, 1998).

b. U-Bongani **u-qubh-e** **ikhilomitha** #kodwa ak-a-yi-gqib-a.
1A-Bongani SP$_1$-swim-PFV.CJ 9.kilometre but NEG.SP$_1$-CONSEC-OP$_9$-finish-FV
'Bongani swam a kilometre #but he did not finish it.'

Taken together, the examples here and in Section 6.3.1 above suggest that, broadly construed, the activity–accomplishment distinction may not be of great salience for basic grammar–lexicon interactions in Nguni. Instead, subclasses of the activity-like and the accomplishment-like verbs may be of some grammatical relevance. For example, activity-like verbs make an important distinction between those that are potentially transitive (e.g. *cula* 'sing') and those that are virtually always intransitive (e.g. *khohlela* 'cough'). Accomplishment-like predicates may differ according to the type of bounding – affected object or locative goal vs. measure adverbial, as in (98–100) above – or according to specific semantics, as in the availability of non-culmination readings in (101–104). Further investigation, including quantitative corpus work, is called for in order to shed further light on these topics. In Section 6.3.3, we discuss a further possible variable in grammar–lexicon interactions involving non-inchoative verbs, namely, the ease of construing resultant states.

6.3.3 Accomplishment-like verbs and resultant states. One real-world semantic difference between activity-like verbs and accomplishment-like verbs (or predicates) is that accomplishment-like verbs often culminate in a physical result. Predicates describing culminating events may also be associated with existential results such as those referred to in Parson (1990):[29]

> [F]or every event e that culminates there is a corresponding state that holds after … If Mary eats lunch, then there is a state that holds forever after: The state of Mary's having eaten lunch. (Parson 1990: 234)

In contrast to this notion of almost universally available resultant states, we refer in this paper only to resultant states that are part of a verb's phasal make-up. (These correspond approximately to Parson's [1990] "target" states.) Furthermore, although a resultant state, relevant to the affected *object*, may be logically entailed with accomplishment-like verbs, it does not seem to be lexically encoded in the same way that subject resultant states are encoded in inchoative verbs. That is, the relevant entries into a new state with accomplishment-like verbs are accessible via world knowledge but are not directly part of the basic lexical event structure.

Some accomplishment-like verbs have potential construals in which a resultant state holds for the subject, but these are only available in particular contexts and with the absence of a direct object (see Crane 2011 and Kanijo 2019 for discussions of related phenomena in Totela and Nyamwezi, respectively). That is, they seem to be context-sensitive coercions (or idiomatic expressions) rather than (as with inchoative verbs) default interpretations of the verb in that grammatical frame. Note that examples such as (105b) with *akha* 'build', in which 'build' is extended into the state of inhabiting a building, do not even necessarily require that the subject engaged in the construction process itself. As with inchoative verbs, the resultant state must hold for the subject and not just for some entity in the world.

[29] See also Nedjalkov (1988) for discussion of resultant states in a different theoretical framework.

(105) Southern Ndebele

a. #U-**s**-akh-**e** indlu.
SP$_1$-PERS-build-PFV.CJ 9.house
Intended: 'S/he has still built a house.' (i.e. the house is still standing)

b. U-**s**-akh-**e** phambi kwesitolo.
SP$_1$-PERS-build-PFV.CJ front 17(LOC).ASSOC.9.store
'S/he is still living in front of the store.' (lit. 'S/he is still built in front of the store.')[30]

One context that is interesting in this regard – and requires much further investigation – is a set of verbs that express transitive events in the real world but are often used without overt direct objects, for example, Southern Ndebele *bekela* 'lay eggs' and *etjisa* 'chew the cud'. As discussed above, the persistive perfective construction typically targets ongoing states with inchoative verbs (e.g. *u**sa**dan**ile*** 's/he is still disappointed'). In most other cases, such a reading is not available, but readings such as '(until now,) only' or 'again' (the latter only in Southern Ndebele) may be possible.

With verbs like Southern Ndebele *bekela* 'lay eggs' and *etjisa* 'chew the cud', persistive-plus-perfective forms might constitute a bridging context in a possible grammaticalization chain between (interim) resultant state and the 'only' readings mentioned in Section 4.3.2. Both of these verbs have an interpretation of the persistive perfective in which the subject is in an interim state, caused by the termination of the eventuality, before something else is expected to occur: brooding, in the case of laying eggs (106), and going out to graze again in the case of chewing the cud (107). In both cases, a reading of 'only done X, until this point' is obtained, and this reading overlaps with a reading describing the present state of the subject.

(106) Southern Ndebele

a. Ikukhu i-**ya**-bekel-a.
9.chicken SP$_9$-DJ-lay_eggs-FV
'The chicken lays / is laying eggs.'

b. Ikukhu i-**bekele**.
9.chicken SP$_9$-lay_eggs.PFV.DJ
'The chicken (has) laid eggs.'

c. Ikukhu i-**sa**-**bekele**.
9.chicken SP$_9$-PERS-lay_eggs.PFV.DJ
'The chicken has (only) laid these eggs.' (i.e. it has not yet started brooding)

(107) Southern Ndebele

a. Ikomo i-**y**-etjis-a.
9.cow SP$_9$-DJ-chew_cud-FV
'The cow chews / is chewing its cud.'

[30] Note also Southern Ndebele *isakhamuzi* 'citizen, resident (cl. 7)', which seems to combine *akha* 'build' and *umuzi* 'homestead, village, town'.

b. Ikomo y-etjis-**ile**.
9.cow SP$_9$-chew_cud-PFV.DJ
'The cow (has) chewed its cud.'

c. Ikomo i-**s**-etjhis-**ile**.
9.cow SP$_9$-PERS-chew_cud-PFV.DJ
'The cow has just chewed its cud' (it has not started eating again; it is finished chewing its cud and is now relaxed; it has not yet gone out to graze again)

Which verbs allow for such construals appears to be lexically (and idiomatically) determined, and, to some extent, speaker dependent. No Southern Ndebele speakers in our sample allow for examples like (108), while there is sharp disagreement about whether (109) is felicitous; speakers who accept it gave the interpretation given in that example. Further research is needed to account for the difference in judgments.

(108) #U-**sa**-cul-**ile**.
SP$_1$-PERS-sing-PFV.DJ
Intended: '?S/he is still in a state of having sung (the song).'

(109) ?U-Sipho u-**sa**-dl-**ile**.
1A-Sipho SP$_1$-PERS-eat-PFV.DJ
'Sipho is still full.' (lit: 'Sipho has still eaten', i.e. is still in a state of having eaten)

The possibility of construing a subject-relevant resultant state is also evident in Southern Ndebele when past *be-* (a grammaticalization of *ba* 'be(come)' and the conjoint perfective *-e*) is used together with the perfective *-ile* suffix. Possibly because *be-* is associated with imperfective (habitual and progressive) readings (as in, e.g., examples 95–97 above), past *be*-plus-perfective constructions do not have the same default readings as untensed perfective forms transferred into the past (i.e. past event / state-change or concurrent state). Rather, at least in Southern Ndebele, *be*-plus-perfective forms are only felicitous if a subject-relevant state can be construed, as shown in the examples in (110). This construal is trivially and universally available with inchoative verbs (110a), and contextually available with some activity-like and accomplishment-like verbs. With *thuthumba* 'explode, burst' (110b), a non-reversible change-of-state verb with ambiguous behaviour regarding the grammatical encoding of a resultant state, a past-result reading is easily available with *be*-plus-perfective. With *tlola incwadi* 'write a book/letter', the construction is infelicitous without contextual support, but speakers were able to construe a context in which such an expression might be used. In contrast, with *khohlela* 'cough', although speakers discussed possible situations extensively, no relevant supporting context could be found.

(110) Southern Ndebele
a. Inchoative *dana* 'be(come) disappointed'
U-Sipho **be**-ka-dan-**ile**.
1A-Sipho PST-SP$_1$-be(come)_disappointed-PFV.DJ
'Sipho was disappointed.'

b. (Non-reversible) change-of-state thuthumba ‘explode, burst’
Be-si-thuthumb-**ile** na-si-fik-a-ko.
PST-SP$_7$-explode-PFV.DJ SIT-SP$_{1PL}$-arrrive-FV-REL
‘It had exploded when we arrived.’ (i.e. we saw it broken)

c. Non-inchoative tlola incwadi ‘write a letter’
U-Sipho **be**-ka-tlol-**e** incwadi.
1A-Sipho PST-SP$_1$-write-PFV.CJ 9.letter
‘Sipho had written a letter.’ (Speaker comments, paraphrased: “Maybe possible in a scenario in which Sipho committed suicide, and before that he wrote a letter explaining his decision, and the letter was found with his body.”)

d. Non-inchoative khohlela ‘cough’
#U-Sipho **be**-ka-**khohlele**.
1A-Sipho PST-SP$_1$-cough.PFV.DJ
Intended: ‘Sipho had coughed.’ (Speakers searched for a context in which such a statement would be felicitous but could not come up with one.)

In sum, the inchoative–non-inchoative distinction is important in Nguni, and this distinction might be extendable to the contextually based construal of resultant states relevant to the subject with some verbs (and predicates) that are not canonically inchoative. This section contains tentative observations that still require follow-up, such as psycholinguistic experiments to test the relative cognitive salience of telicity in Nguni languages vs. its salience in languages for which it is claimed to be a major line of division in actional classification.

7. Conclusion and outlook

In this article, we have presented a range of features of the actional systems of the Nguni languages Southern Ndebele and Xhosa, and their interactions with markers of grammatical aspect and other bounding elements. We have argued that, as in many other Bantu languages, the distinction between inchoative verbs (encoding a resultant state) and non-inchoative verbs is a crucial one, and that the possibility of construing a subject-relevant resultant state, even when such a state is not lexically encoded, appears to be an important factor in grammar–lexicon interactions in these languages. We have also presented evidence for a subclass of inchoative verbs that lexically encode both a preparatory coming-to-be phase and a resultant phase. Such two-phase verbs are an important verb type in Nguni and across much of Bantu (and possibly Niger-Congo more broadly). Two-phase verbs are a known class, though not necessarily a common one, in other world languages, but their interactions with perfective–imperfective systems differ from those seen in Bantu (Polančec forthc.).

We have additionally documented some of the more complex patterns of verbal grammar–lexicon interaction observed in these languages and suggested some semantic characteristics that may correlate with these patterns. Some lexemes appear to vary in their actional profiles and characteristics both across speakers in the languages under investigation, and between the two languages. Quantitative corpus work, especially using corpora of natural speech, would shed light on usage patterns and how they relate to speakers’ felicity judgments.

One significant area of variation – and one that is somewhat challenging to explore – is the coming-to-be phase encoded by some inchoative verbs (namely, the class of two-phase verbs). Not

only do not all inchoative verbs appear to encode a coming-to-be phase, but not all coming-to-be phases are equally targetable by the frames that test for them, and verbal behaviour with respect to coming-to-be phases appears to be more context-sensitive than is behaviour with respect to resultant phases. While some inchoative verbs encode clear coming-to-be phases, and others clearly do not encode these phases, many inchoative verbs seem to have shorter coming-to-be phases or to allow for coming-to-be readings only in a narrower set of frames. Similar (and seemingly related) variation exists in the availability of state-change readings with certain perfective frames. The nature of the coming-to-be phase, and the factors affecting its targetability in perfective and imperfective frames, therefore require further research with a broader selection of inchoative verbs.

We have also raised questions about the relevance of telicity for actional classification, presenting evidence that standard tests for telicity are not straightforward. As noted, a fuller understanding of the role of telicity will require quantitative corpus work to test for its grammatical significance (that is, whether usage patterns differ systematically between real-world bounded and unbounded situations) and, possibly, psycholinguistic experiments to test for its cognitive salience. Still, our present data suggest that telicity (or right-boundedness) may not be the primary organising feature in the actional systems of Southern Ndebele and Xhosa. Inchoativity seems to play a more significant grammatical role.

As shown in Section 6.3, in some special contexts, even some non-inchoative verbs allow for coerced or idiomatic readings in which a subject-relevant state is invoked. Such readings underscore the overall importance of inchoativity in the actional system. We have argued that only some verbs belong to the class of inchoative verbs (although, as we have noted, class boundaries are not always sharp, and actional classes may ultimately be defined as clusters of similar features rather than as uniform categories), and that in perfective aspectual frames, inchoative verbs have ongoing-state readings as their default interpretation without additional contextual support. However, the frequent use of the perfective with ongoing-state readings probably allows for the reinterpretation of ongoing-state readings in cases where a subject-relevant resultant state is salient, as with the examples in Section 6.3 and in example (83) in Section 5.5. Perfective–imperfective grammatical systems in Nguni and in many other Bantu languages thus seem to be organized, at least in large part, around the inchoative–non-inchoative actional divide. The structure of the actional system and structure of the grammatical system are intertwined, functioning in a mutually influential relationship both synchronically and across time.

Throughout this paper, we have attempted to illustrate some of the numerous complexities of actional systems, which are not always apparent in the clean-cut categorizations often presented in the literature. We hope that this work will be useful both in deepening understanding of the actional systems of Southern Ndebele and Xhosa, and in spurring further research in other Bantu languages, with the goal of a better understanding of the themes and variations seen in Bantu actionality systems and more meaningful cross-linguistic comparison. There is still much to discover about actionality in Bantu languages.

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List of glosses and abbreviations

1…17	noun classes
1A	noun class 1a
1PL	first person plural
1SG	first person singular
2SG	second person singular
ALT	alterative ('now', 'already')
ASSOC	associative (genitive)
CAUS	causative
CJ	conjoint
COM	comitative ('with', 'and')
COMP	complementizer
CONSEC	consecutive
COP	copula
DEM	demonstrative
DJ	disjoint
FV	final vowel
IMP	imperative
INF	infinitive
INSTR	instrumental
LOC	locative
NEG	negation
NEUT	neuter ('mediopassive' / 'anticausative')
OP	object prefix
PASS	passive
PERS	persistive ('still')
PFCT	perfect
PFV	perfective aspect
PROX	proximal demonstrative
POSS	possessive
PRS	present tense
PST	past tense
REL	relative clause marker
SIT	situative ('when')

SP	subject prefix
SUBORD	subordinate

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